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ABSTRACT

Five papers are presented from a 1982 conference on "Developmental and Clinical Aspects of Young Children's Play." In the first paper ("Cognitive Characteristics of Young Children's Play,") S. Rogers summarizes J. Piaget's theories on developmental stages, discusses the relationship of practice play to learning, and then focuses on the role of symbolic play, with special emphasis on research regarding play of handicapped children. D. Wolf ("Play as a Mirror for Development") considers play as a reflection of the child's development, symbolic growth, and social understanding; and as an indicator of individual differences. G. Farley examines "The Use of Play in Child Psychotherapy with Severely Emotionally Disturbed Preschoolers." I. Bretherton et al. focus on group and individual differences in child's play ("The Effect of Contextual Variation on Symbolic Play: Development from 20 to 28 Months"). In the final paper, "Development of Free Play Behavior in Infancy," R. Harmon and A. Glicken review studies on the free play behavior in normal, abused/neglected, and premature infants 12-18 months old. (CL)

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Developmental and Clinical Aspects of Young Children's Play

edited by Ruth Pelz

Prepared and distributed by

WESTAR
Western States Technical Assistance Resource
345 N. Monmouth Avenue
Monmouth, Oregon 97361
503/838-1220, ext. 391

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WESTAR coordinator:

Meave StevensDominguez

Managing editor:

Arnold Waldstein

Word processing by:

Valerie Woods

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PREFACE

"Developmental and Clinical Aspects of Young Children's Play" was the title of a symposium held in Denver, Colorado May 7 and 8, 1982 and sponsored by The Playschool, a Handicapped Children's Early Education Program (HCEEP) model demonstration program, funded through Special Education Programs (SEP) of the U.S. Department of Education. The Playschool director, Dr. Sally Rogers, designed and arranged the symposium with several objectives in mind: to assist her staff in understanding how play develops, to stimulate thinking in the professional community in regard to using children's play for assessment and intervention, and to identify methods for systematic examination of play. WESTAR assisted in the initial preparations for the play symposium and is now pleased to offer, in this Series Paper, five of the professional papers presented there.

Additional information is available from:

Dr. Sally J. Rogers
The Playschool
JFK Child Development Center
4200 East Ninth Avenue
Denver, CO 80262
303/394-8606

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Introduction

Margery E. Greenberg

The symposium at which these papers were presented created a unique opportunity to hear what current psychological research has to say about the cognitive, social, and intrapsychic aspects of play. It was a gratifying as well as an educational experience. It served to reaffirm our belief in play as a medium for growth and development, and it has provided us with some new constructs which appear to have direct applications to classroom activities.

We have always known that play was important. Indeed historically, until the early 1960's, preschools focused primarily on play, seeing the group experience as an adjunct to it, and as a way of fostering the socialization of the child. As the emphasis shifted in the sixties towards cognitive enrichment, the didactic approach began to take over in this country, despite the influences of Piaget and the contributions of the British Infant School. At the same time as the English moved toward play as a cognitive tool, we allowed ourselves to be sidetracked by stimulus-response approaches, which were promoted in the name of school readiness, or compensatory or remedial education. Particularly for the handicapped child, play became a reward for work, if it existed at all. Pressed by parents who worry about "readiness" and intimidated by the disdainful remarks of people who observe those few classrooms where play is still alive and well, we welcome the opportunity to be able to say--"Let us show you the research..." The five papers presented here offer a broad and informative introduction to that research and offer convincing data on the significance of play in early childhood.

In the first chapter, Sally Rogers examines symbolic play as it is related to children's cognitive development. She begins her review of the research with a fairly detailed summary of Piaget's theoretical work on play--important because this work is the point of departure for many researchers in the area. She also covers research on symbolic play among children with various handicapping conditions.

In her presentation, Dennie Wolf discusses play as a window on children's developmental processes--their growing social understanding and ability to distinguish fantasy from reality, and so on. She considers not only what play reveals about various stages in normal child development but also what it implies about cultural and individual differences between children.

Gordon Farley draws on his own experience with severely emotionally disturbed children and suggests that for them, play does not appear to follow the same developmental course as for normal children. He includes suggestions for intervention for those who work with such children.

The last two chapters are reports on some of the important research that has recently been conducted. The first describes studies of young children's acquisition of event schemata at 20 and at 28 months of age. The authors, Inge Bretherton, Barbara O'Connell, Cecilia Shore and Elizabeth Bates, discuss their experimental results in terms of both group and individual differences on the six variables studied.

The last paper is by Bob Harmon and Anita Glicken and concerns the play development of infants between the ages of 12 and 18 months. They studied normal, abused/neglected and premature infants' play in terms of inanimate object play and social factors. This study covers a relatively neglected age period and has interesting implications for those working with at-risk infant populations.

The enormous quantity of data so briefly summarized here has far-reaching implications for future study, but since this conference was primarily directed towards acquainting practitioners with current research, it seems appropriate now to discuss the findings that may have direct implications for the classroom teacher or for the early childhood curriculum specialist.

According to the papers presented here, early childhood educators should consider or reconsider the following when they are programming for young children and their families:

1. The pivotal role of toys in facilitating language and communication for the young toddler.

2. The stages or ages when one developmental line takes precedence over another developmental line; for example, communication seems to have precedence over increased play complexity for the 18-month-old. The educator needs to understand these phenomena and, in addition, may wish to consider how best to assist parents to facilitate their child's development in these areas.

3. The early childhood educator may want to take a second look at our parent/infant programs for preterm and/or handicapped children. Present programs are focused on assisting parents to stimulate their babies. Dr. Harmon's data, on the other hand, suggest that parents may be hindering, rather than facilitating development by their stimulation. It would appear that a model which helps parents to "read" the baby's cues, no matter how feeble or slow, may be more appropriate. In any event, the importance of infant cues needs to be considered in planning programs for this population, and more applied research in this area seems imperative.

4. Programs for young handicapped children have been described as "environmentally barren, cold, and sterile" (Olds, 1979, p. 91). A recent article in Topics in Early Childhood Education, (Bailey, Clifford, & Harms, 1982), raises serious questions about the normalcy and adequacy of environments provided by preschool programs for handicapped youngsters. Since we have been told that levels of symbolic play are extremely sensitive to context and atmoshpere and to the level of trust in the adult (see chapters by Wolf & Bretherton), we may want to examine our classroom environments to see how well we have provided an atmosphere conducive to symbolic play.

5. Perhaps, as Wolf suggests, we should begin to give more credence to children's individual play preferences. We have tended to assume that children who avoid certain types of play are demonstrating a deficit, rather than a difference. We might begin to honor these preferences or to use them to encourage development if there is increasing evidence that they do represent deficits rather than differences.

6. In their presentations, Wolf and Bretherton have described the progressions leading to representational thought and language. An understanding of these progressions is directly related to "teacher talk," and to environmental and curriculum design. If one understands the stage at which the child is functioning, one can enlarge upon the child's facility and present skills. One might, perhaps, explore the use of scripts, which Bretherton used as a research tool, to increase the incidence of dramatic play in the classroom. Keeping in mind that modeling is an acceptable educational tool, scripts may indeed function as an excellent modeling device for those children who need assistance to get the play going.

But over and above these specific recommendations, early childhood educators need to involve themselves in research. They have the laboratory in situ, and they know the children. Careful data-keeping could tell us whether, indeed, the severely emotionally disturbed child's play is truly deviant or simply delayed. Is it delayed because of the youngster's inability to relate to the environment, and if so, is it amenable to change if we begin by programming play in the same way we program for cognitive delays? Or is it deviant because of some

neurological dysfunction, which involves social relations as well as language and motor abilities--two areas which are often found to be delayed in young children with severe emotional problems? Careful documentation of behaviors during classroom activities could help us resolve these questions. While practitioners may not have the time, or may not feel that research is truly their bailiwick, good data collection by teachers would facilitate research in the area for those ready and able to pull the teachers' findings together and would provide data that comes out of real situations rather than that which is influenced by the bias of a researcher's hypothesis.

The conference provided educators not only information but also the opportunity to interact with psychologists and to gain an understanding of the way they collect information and make inferences from it. Now we must digest the information, transfer it to the workplace--the classroom--and document our findings so that future conferences can focus on interchanges among us, so that a true dialogue between disciplines can occur.

REFERENCES

Bailey, D., Clifford, R.M., & Harms, T. Comparison of preschool environments for handicapped and nonhandicapped children. Topics in Early Childhood Education, 1982, 2(1), 9-20.

Olds, A.R. Designing developmentally optimal classrooms for children with special needs. In S.J. Melsels (Ed.), Special education and development. Baltimore: University Park Press, 1979.

CONTRIBUTORS

Elizabeth Bates, Department of Psychology, University of California at San Diego, CA 92110.

Inge Bretherton, Department of Psychology, University of Colorado, Boulder, CO 80309; Department of Human Development and Family Studies, Colorado State University, Fort Collins, CO.

Gordon K. Farley, Department of Child Psychiatry, University of Colorado Medical Center, Denver, CO 80262.

Anita Glicken, Child Health Associate Program, University of Colorado Health Sciences Center, Denver, CO 80262.

Margery E. Greenberg, John F. Kennedy Child Development Center Preschool, University of Colorado Health Sciences Center, Denver, CO 80262.

Robert J. Harmon, Department of Psychiatry, University of Colorado School of Medicine, Denver, CO 80262.

Barbara O'Connell, Department of Psychology, University of California at San Diego, CA, 92110.

Sally J. Rogers, John F. Kennedy Child Development Center, University of Colorado Health Sciences Center, Denver, CO 80262.

Cecilia Shore, Department of Psychology, Miami University, Oxford, OH 45056.

Dennis Palmer Wolf, Harvard Graduate School of Education, Cambridge, MA 02138.

Cognitive Characteristics of Young Children's Play*

Sally J. Rogers, Ph.D.

Young children grow cognitively and learn from play just as older children grow and learn from school work. Some believe play to be the most important source of development in the preschool years (Erikson, 1976; Vygotsky, 1976), affecting all areas of psychological development --cognitive, emotional and social development and creativity.

Since so much psychological information about a young child can be revealed through play, many early childhood professionals include a play interview and/or play observations as a part of their standard assessment procedure, in order to get a more complete picture of the child. A developmental assessment is generally controlled by the assessor; the child is expected to cooperate and perform as directed, to submit to the adult's control. In a play interview, the roles are reversed, and the child is given control of the situation. The way the child structures the situation, the amount of control the child tries to exert over the adult, the activities chosen, the level of symbolic play, and the play themes that arise help the assessor considerably in fleshing out a picture of the whole child.

Origins of Play

Play appears to develop out of an interaction of three factors: the child's growing awareness of self, the child's growing cognitive understanding of objects in the world, and the child's growing attachment to and investment in the parents--and through them, to the outside world (Murphy, 1972). As Murphy states, "Narcissism, the cognitive experience, and cathexis of the outside are all very closely interrelated in this first play" (p. 122). Thus, from the earliest examples of infants' play--shaking a rattle, patting at the mother's face--Murphy sees the cognitive, social, and emotional aspects of play represented. And although infant play appears to be largely toy-centered rather than social, good parenting is still a necessary forerunner of object play, as seen in the lack of toy play in institutionalized infants (Provence & Lipton, 1962).

What is it that "good" parents provide? First, they reinforce the baby's early attempts at making something happen, thus assisting the baby to turn passive experiences into active ones. Second, they provide dependable life patterns, giving the baby a sense of orderliness and structure in the world. This is critical for play, because play involves the child's imposition of a structure on the outside world, and, as Murphy states, one cannot externalize structure unless one has previously internalized it. Third, parents contribute to the baby's awareness of self through tactile and affective play, as well as through responsive caretaking, giving the baby a balance in experiences of doing and being done to. This provides the groundwork for later turning passive experiences into active ones through play and fantasy, and through symbolic and constructive play. Fourth, Murphy feels that even creativity is dependent upon a capacity for

*Another version of this paper appeared in Ulrey, G., & Rogers, S. Psychological assessment of handicapped infants and young children. New York: Thieme and Stratton, 1982.

play and upon good feelings about oneself which grew out of "...the joy, the delight, the fun of the earliest mother-baby duets" (Murphy, 1972, p. 126).

Functions of Play

According to Erikson, play provides "the restoration and creation of a leeway of mastery in a set of developments or circumstances" (Erikson, 1972, p. 133). Thus, the myriad forms of play can be seen to represent mastery of various skills, capacities, or experiences, determined by the child's current developmental status and personal life experiences.

This view of play as serving the function of active mastery (the child's assertion of some aspect of self on the environment), is a view taken by most authors, and is seen as the primary function of play. As Murphy states, "With children, play is psychically active, if and when the child is free to enjoy and to impose something, some structure, some pattern, on the environment" (Murphy, 1972, p. 121).

Play involving the practice of motor skills, such as climbing, jumping, swinging, etc., demonstrate the child's exercise and mastery of developing motor skills. Play involving creative or constructive activities--making paintings, working with clay or blocks, executing drawings, making up rhymes or songs--demonstrates the joy of self-expression. Play involving the acting out of unhappy incidents from the past demonstrates the child's active attempts to master traumatic experiences which were originally experienced passively. Social play involving role-taking with peers demonstrates the child's atempts to understand and master complex social life roles and situations (Erikson, 1972).

Cognitive Aspects of Play

Since Piaget has offered perhaps the most elaborate framework for understanding the various forms of play (Piaget, 1962), his interpretation of the various types and functions of play will be reviewed here in some detail. Piaget asserts that each new sensorimotor or symbolic structure (schema) needs a continuous flow of functional activity in order to develop. Schemas develop via two processes--assimilation and accommodation. The infant assimilates new information into his or her existing level of understanding or existing schemata. An example of this is an infant who has a schema for shaking and assimilates many new objects into this existing schema by shaking a bell, ball, rattle, hairbrush, necklace, etc. The infant also accommodates, or alters, existing schemas in order to adapt better to the environment. Thus, the infant with a well-developed shaking schema would, after many experiences with objects, realize that some objects are more shakable than others. This child might continue to shake the bell and rattle, but might accommodate the shaking schema for the other objects by trying new ways of manipulating the ball, hairbrush, and necklace. These new behaviors are new schemas, into which new objects can be assimilated. Learning has occurred.

Piaget differentiates play from the learning process in that while learning involves both assimilation and accommodation, there comes a point where a schema is developed and requires no new accommodation. At this point the schema, or behavior, is reproduced purely for functional pleasure, and for Piaget this is play. Assimilation is the primary process involved in play, and the child fits the outside world into existing schemas just for the pleasure of using the mastered schemas. The following description of Piagetian theory of play is based on Play, Dreams, and Imitation in the Child (Piaget, 1962).

Sensorimotor Play

Play is first observed in the second sensorimotor stage (1 to 4 months), after a primary circular reaction has been mastered; after such mastery, the infant reproduces the behavior for pleasure with a smile or laugh, without expecting any other results. In the third sensorimotor stage (4 to 8 months), schemas once learned unfailingly become games; once again the expression of joy and power (mastery) are the cues that let us know the child is playing. In the fourth stage (8 to 12 months) one can see strings of playful behaviors (a succession of schemas) one after the other, with no goal and no external aim or purpose except mastery and fun. In the fifth sensorimotor stage (12 to 18 months), one sees further development of these chains of unrelated actions; they now develop into rituals and are repeated again and again with playful affect and with the characteristics of a game.

So far, all of these levels of play fall into Piaget's category of practice games, which are exercises of various behaviors without modifying the behavior. Practice games occur throughout the preschool years as well as in infancy, and can involve motor or language games. The function, or purpose, of practice games is to exercise newly developed mental structures, mental or sensorimotor schemas, and various motor, mental, and linguistic skills motivated by the sheer pleasure of functioning. There are no symbols, no make-believe, and no rules. Practice games occur whenever a new skill is acquired.

In the sixth sensorimotor stage (18 to 24 months) a new kind of play emerges for the first time as the child demonstrates new capacities of representational, or symbolic, thought. Symbolic play--pretending or make-believe--occurs when the child starts with a familiar schema--drinking from a cup, for instance--and then assimilates new objects into that schema. The new objects are in reality unrelated to the schema, but are symbolically transformed to the schema by the child. An example would be a shell which the child holds to the lips so that it symbolizes a cup. Thus, in symbolic play, an absent object is represented. Objects are used as symbols of something unrelated to the actual object, and are assimilated into the play theme. There is no accommodation to external reality. Rather, reality is tranformed (assimilated) to fit the play theme.

The purpose of symbolic play is not skill mastery, as it is with practice games. Rather, the function is affective (here Piaget is quite close to psychodynamic theorists); and the child's emotional life, including emotional issues like compensation, wish fulfillment, and conflict resolution, form the content of symbolic play. Mastery is focused on the child's emotional reality, and the symbol is a means for the child to assimlate, or transform, reality to fit desires, interests, or feelings.

Preoperational Period--Ages 2 to 4

During the preoperational period, the child's symbolic games become increasingly sophisticated. The first and most primitive form of symbolic play is seen in the final sensorimotor stage (stage six). Piaget labels this type of symbolic play the symbolic schema, which is the reproduction of a sensorimotor schema outside of its normal context and without the objects usually associated with it (like drinking from a shell). In this period the behavior is the symbol--drinking--and the child is pretending to carry out a familiar activity.

In the preoperational period, language becomes an important part of symbolic play, and the child can describe or label symbols used in play. The first stage of preoperational symbolic play involves the projection of symbolic schemas. The child may project one of his or her own behaviors onto someone or something else, like pretending to give a doll a drink; alternatively, the child may project someone or something else's behavior onto him or herself, and thus may

imitate drinking out of a bowl like a kitten. Both of these involve an imitation of self or of other, and an assimilation of the prop into the child's play theme.

The second stage involves identification of one thing with another, rather than projection of a behavior onto another. Now the child says that an object is something else, holds up the shell and says, "This is my teacup." Or the child may identify his or her body with something else, and say, "I am a kitty." There are several crucial differences between this stage and the preceding one. First, the child makes the symbolic identification before beginning the imitative action and indicates the symbols' identification through speech. Second, the imitative action copies the symbolized object, not the child's own activities.

The third preoperational play stage involves symbolic combinations. After 1-1/2 years of age, the first examples of simple symbolic combinations are seen. These combinations involve constructing and acting out whole symbolic scenes which may include role-played or imaginary characters. A striking feature of these symbolic combinations is the extent to which the child reproduces the real world in play, for the function of such play is to reconstruct and assimilate reality through make-believe.

In the next stage of symbolic combinations, compensatory combinations, the child changes or corrects reality rather than simply reproducing it for sheer pleasure. Thus, the child plays out make-believe scenarios, pretending to do something to change reality, like displacing an event onto another person or altering a characteristic or quality of a person or object. A related form of this type of play is catharsis, in which the child neutralizes a fear or painful event through acting out in play a wish or fantasy which couldn't be acted out in reality.

In the third type of symbolic combinations, liquidating combinations, the child relives a difficult or unpleasant situation by transposing it symbolically. In this type of play, Piaget feels, one can see most clearly the function of symbolic play. This function is to assimilate reality to the ego (allowing the ego to actively master reality) while freeing the ego from the real-life demands of accommodation. In these scenarios the ego runs the risk of failure but assimilates the risks, and in so doing is the victor.

In the final type of symbolic combination, anticipatory symbolic combinations, the child symbolically anticipates the consequences of not obeying an instruction or warning which has been given in thematic play. The child's use of symbolic games in all of these cases involves assimilation of reality to the ego and intensification of assimilatory pleasure through fictitious control of the natural and social world.

Intuitive Period--Ages 4 to 7

Piaget believes that as the child's cognitive capacities develop, allowing the child to understand more about the natural and social world, symbolic games begin to lose their importance. The child continues to use play to represent reality, but the symbols used in play became so close to reality that the play seems more a straight imitation than a playful representation. This can be seen, for instance, in cooking sets which allow children to bake cakes packaged in miniature boxes and prepared with miniature cookware. This kind of play is more easily seen as a straight imitation of reality (assimilation).

The three distinguishing characteristics of symbolic games in the intuitive period are as follows:

1. The first characteristic is the relative orderliness of the playful construct, or theme. The flow of ideas is coherent and smooth.
2. The second is the increasing desire for exact imitation of reality.
3. The third is the appearance of collective symbolism. The child is far more able to adapt role playing to other children's needs and desires, and so the child both differentiates play

roles and adapts them in order to coordinate the play with other children. In this instance, one can see the progress made both in cognitive processes and in social growth, a real interaction of social and mental acquisitions.

Given the depth and breadth of Piaget's handling of play, it is not surprising that there are no other theories which actively compete with his viewpoints. Although there are, of course, criticisms of Piaget (Sutton-Smith, 1966), most of the research to date has focused on specific relationships of certain variables to young children's play.

The Relationship of Practice Play to Learning

Several authors in addition to Piaget have hypothesized that young children's play with objects assists them in later learning of problem-solving tasks in two ways. First, play gives children practice with materials in a nonstressful situation. Second, play provides an opportunity to discover many new combinations of behaviors with objects (Smith & Sutton, 1979).

Two studies have examined this hypothesis using the problem-solving task which Kohler devised for his apes--a child's version of the stick and banana task. The first study (Sylva, Brunner, & Genova, 1976; Sylva, 1977) examined the performance of white, middle-class preschoolers on a task in which the children were to retrieve a piece of chalk from a small cage, using sticks which had to be clamped together in order to reach the chalk. Children who manipulated the materials without adult intervention--the play group--performed as well as the children who had seen the adult demonstrate the task--the imitation group--and out-performed the controls. The play group was also more eager and more flexible in their approaches. These children exerted continuous effort to solve the problem, and made better use of hints than the other groups. Sylva felt that the key element in this study was self-initiation, as well as flexibility and low stress.

In a similar study, Smith and Sutton (1979) found that, while the play and imitation groups performed fairly equally on the initial task, when the task was altered and made more difficult, the play group was clearly superior. Thus, practice play seems to aid problem-solving by providing self-initiated experiences with flexible combinations of behaviors.

Functions of Symbolic Play

Feitelson and Ross (1973) have focused on five functions of symbolic play. (The various authors cited in this section used different terms to describe this type of play, including thematic, fantasy, imaginary, sociodramatic, and representational play. The term symbolic play will be used to signify all of these.)

First, symbolic play socializes. Through it, children rehearse social roles and learn about social relationships. Second, it contributes to mental health by helping the child regain or maintain emotional equilibrium and by helping the child gain a sense of control (or mastery) over the world. Third, symbolic play helps the child accumulate information about the objects being played with, about social relationships with peers in play, and about rules and outlines of the real world. Fourth, it aids cognitive development and assists imagination and creativity. And finally, it helps the child develop positive personality traits or attitudinal styles involving perserverance, motivation, self-confidence and social skills.

The Relationship of Symbolic Play to Abstract Thought

The Russian cognitive theorist, Vygotsky, feels that symbolic play--creating imaginary situations and acting them out--is a primary source of cognitive development. There are two

aspects of symbolic play which Vygotsky believes foster cognitive growth: the separation of thought from perception, and the development of self-control (Vygotsky, 1976). Regarding separation of thought from perception, Vygotsky belives that before the age of 3, children are compelled to act by their perception of the objects around them (observing any 2-year-old on a shopping trip should be immediate confirmation of this view). Thus, stairs are to be climbed, bells are to be rung, etc. Vygotsky feels that imaginative play gives the child the first experiences in which the child's thoughts--not the nature of the objects--control activity, and for the first time the child plans and controls his or her behavior with ideas. The preschooler can thus separate cognition from perception in play, a transitional step in logical problem-solving.

Regarding the second aspect, self-control, Vygotsky sees covert rules regarding role-appropriate behaviors appearing in preschoolers' play. The child must inhibit impulses and subordinate desires to these covert rules, requiring self-control. (Note what a different orientation this is from Piaget, who sees the child subordinating reality to the self.)

Both of these aspects assist in the development of logical or abstract thought by helping the child separate internal thoughts or impulses from external perceptions of rules. The child learns to differentiate subjective from objective--which is the basis for use of logic to solve problems--and thus is prepared for the transition to more abstract thought processes.

Universality of Symbolic Play

In the writings of Piaget, Vygotsky, Freud, and Erikson, one is left with the impression that symbolic play is a universal phenomenon, an always-occurring developmental phase of young children. Yet cross-cultural studies do not support this view. Instead, they suggest that symbolic play is a phenomenon of middle class Western cultures. In other cultures, they may be mainly rough and tumble play or practice play or there may be role play in which the children act out adult roles imitatively but without symbolic transformation (Feitelson, 1977; Feitelson & Ross, 1973).

In addition, the play of Western children who are severely socio-economically deprived has also been examined. It has been found to lack symbolic transformations; to lack higher level practice play involving language, materials, and concepts; and to lack advanced planning and goal-directedness. Instead, the play of poverty-level Western children continues to involve mainly sensorimotor practice play qualities (Murphy, 1972). Preschoolers in rural communities also demonstrate a paucity of symbolic play involving play themes (Feitelson & Ross, 1973).

If symbolic play is culturally mediated, what are the cultural variables that contribute to symbolic play? Feitelson and Ross (1973) mention several environmental factors suggested by various studies. These include the following:

1. Play space seems necessary for formation of symbolic play. Children need a physical area for play, with adults allowing and encouraging play there and respecting the privacy of the area.
2. Play time is also necessary. This is time allotted for play by adults who support the play activity and recognize it as a legitimate activity.
3. Play objects help the child shift to representational play. They must be respected as such by the parents, and a place must be provided for the objects.
4. Play atmosphere is an important fourth variable. This is an atmosphere in which adults participate and model representational play.

Developmental Studies of Symbolic Play

Several studies have examined the developmental course of symbolic play in preschoolers. Vygotsky suggests that children move from play with concrete objects to true use of symbols, either by substituting an object or by imagining it. Elder and Pederson (1978) asked 2- and 3-year-olds to perform realistic acts with appropriate objects, ambiguous objects, unrelated objects, and no object. The expected developmental trend was strongly supported, with the oldest children functioning truly symbolically without any props at all, and the youngest children performing the actions only with realistic props. The study demonstrated that children need progressively less environmental support for symbolic actions during years 2 and 3. (The reader may wish to refer to a related study by Fein, 1975).

Overton and Jackson (1973) also studied young children's symbolic representation, and had findings consistent with those of Elder and Pederson. As both Piaget and Vygotsky suggest, and these researchers have found, the child's gradual internalization of symbols apparently grows increasingly distant from the represented object with age.

In examining symbolic transformations, Matthews (1977) found that the predominant modes used by 4-year-olds to make the cognitive shift from reality to fantasy involved either material transformations or ideational transformations. In material transformations, an actual object in the playroom was assigned some property that it did not actually possess (a new identity, a new function, etc.). In ideational transformations, the children referred to objects, people, or situations that were not present and pretended that they were present. These findings are in line with the two studies cited earlier, which suggested that the symbolic play of older preschoolers would not be limited by having the objects present.

In summary, these studies document the tremendous increase in symbolic thought that occurs between the ages of 2 and 3. They also indicate that while the young preschooler's symbolic play is greatly aided by the presence of realistic play objects, the older preschooler requires much less environmental support for symbolic play, because full symbolic thought has developed.

Symbolic Play and Language Skills

In the studies mentioned above, the symbolic representations were language related. Either the child was verbally instructed in the desired symbolic activity ("Pretend to comb your hair.") or the child's symbolic transformations in free play were rated according to what the children were saying. Piaget indicated that language and symbolic play come from the same cognitive well, which is the ability to represent things symbolically, whether through words, play themes, symbolic thought, or symbolic gestures.

Rosenblatt (1977) provides data from several studies which document that the child's development through the Piagetian play stages is accompanied by mental development (as seen on intelligence tests) and by increasing language development; thus it supports the notion that play reflects underlying cognitive development. Rosenblatt also notes the relationship between the appearance of representational play, the appearance of referential speech, and the appearance of object permanence concepts in the 12- to 18-month-old; all of these indicate the presence of internal representations in the child's mind of the external world.

Bates (1981) described studies in which aphasic youngsters (and adults) were found to lack the ability to use symbolic gestures on the kinds of tasks described in the Overton and Jackson (1973) studies. Bates discussed the relationship among use of symbolic gestures, use of unrelated objects in symbolic play, and use of language. She attributed these three abilities to underlying cognitive development in the use of mental symbolic representations.

Both Bates and Rosenblatt also discussed treatment of several language-disordered children through play techniques. The autistic and aphasic children involved also showed very poor symbolic play skills. Through use of play techniques, they were taught symbolic play, which resulted in an improvement in expressive language, in generalization, and in increased use of words as symbols rather than as rotely learned phrases. The use of one modality to improve another also points to a common underlying element between symbolic play and language. Thus, several studies as well as Piaget's work support the view that language and symbolic play both result from the young child's growing ability to generate and use mental symbols, and that the two behaviors are thus intimately related.

Symbolic Play and Learning

Various studies have demonstrated positive relationships between symbolic play and learning. Sylva et al. (1976) noted that children who played with test materials in a symbolic way were much better at solving tasks than were the children who played with materials in a nonsymbolic way.

Saltz, Dixon, and Johnson (1977) used Piaget's and Vygotsky's emphasis to study the relationship of symbolic play to cognition, impulse control, and empathy. They found that symbolic play--acting out of fantasy and engaging in sociodramatic play--aided the development of IQ, empathy, and impulse control for their subjects. Thus, as was hypothesized, symbolic play seemed to help children develop symbolic thought, appreciation for others' roles, and self-control.

Many authors focus on the social benefits of symbolic play, as children learn to assign and play out roles that require cooperation, leadership, and playing by the rules. Role play also provides children with information about social roles and thus aids their learning about adult roles.

If symbolic play aids social, language, and cognitive development in so many ways, is it possible to enhance symbolic play skills? The Saltz study (Saltz et al., 1977) indicates that it is possible, as does Rosenblatt's (1977) work with language impaired children, whose symbolic play abilities improved, with resulting improvement in language. Rosen (1974) found that a long period of coaching significantly increased black urban preschoolers' spontaneous use of sociodramatic play during free play times; he also found an improvement in group productivity, and group effectiveness on role-taking tasks and skills. These studies, viewed together, indicate that symbolic play skills can be taught to some extent and can be increased by training, with resulting improvement in cognitive, language, and social skills.

Play and Creativity

The final cognitive aspect of play to be considered in this paper is the relationship between play and creativity. Bruner, a major American cognitive theorist, cites two qualities of play which enhance creativity. First, play is a means of minimizing the consequences of one's actions and of learning in a less risky situation. Second, play provides an opportunity to try combinations of behaviors which never would be tried under pressure.

According to Dansky and Silverman (Dansky, 1980; Dansky & Silverman, 1975) symbolic make-believe is also important in increasing associative fluency, a key characteristic of creativity. Dansky believes that the free combination and assimilation of ideas in symbolic play are analogous to the "tendency toward broad attention deployment and non-evaluative ideational productivity which is considered central to creative thinking" (Dansky, 1980, p. 576).

Dansky, examining the associative fluency of preschoolers, found a clear positive relationship between a high degree of symbolic play and a high level of associative fluency on specific tasks (Dansky, 1980). This relationship certainly supports Piaget's view of symbolic play as a source of creative imagination (Piaget, 1962).

Dansky and Silverman (1975) also studied the relationship of object play to associative fluency and found that children who experienced nondirected object play scored significantly higher than others in tests of associative fluency. Dansky and Silverman believe that free play created a set, or attitude, that generated associations to a variety of objects, whether or not the objects were encountered during the play. Thus, play facilitated imaginative adaptation.

Feitelson and Ross (1973) have found that tutoring in symbolic play appeared to increase the amount of symbolic play their 5-year-old subjects used when playing alone and to enhance performance on creativity measures of exploration, innovation, and originality.

In summary, play is considered to have an especially important role in the cognitive development of young children. Children's use of symbols in play provide much practice at functioning on an increasingly mental level, and the child's thoughts and ideas (rather than the physical surroundings) wield more and more control over the child's overt behavior. Thus, we see increasing self-control and decreasing impulsivity with age. The child's developing adeptness at using mental symbols in play parallels the child's ability to use verbal symbols rather than actions, to use goal-directed thought to solve problems, and to find creative approaches to problem-solving. Thus, in several ways, symbolic play appears to enhance cognitive functioning.

Play of Handicapped Children

Research on handicapped children's play is scarce, and much of the work done before the 1970s comparing handicapped children's play to that of nonhandicapped children is confounded by the variable of institutionalization. Until the passage of Public Law 94-142, education for blind, deaf, and emotionally, mentally, and physically handicapped students was often available only in an institutional setting. Thus, studies of handicapped children most often used children in residential settings, and compared them with nonhandicapped children living at home.

Yet, as was discussed earlier in this chapter, play appears to originate and be nurtured by parental attentiveness. As Provence and Lipton (1962) discussed in their excellent book on the effects of institutionalization on children's psychological growth, physical space and play materials cannot by themselves support play. Without personal attention and interaction, children do not play. Thus, studies like Horne's and Philleo's (1976), which compared the solitary play of lower-class, institutionalized, mildly retarded children to nonhandicapped, middle-class home-reared children matched for mental age showed nonhandicapped children demonstrating more constructive, spontaneous, and creative play. But whether the differences are due to retardation, institutionalization, or socioeconomic class differences cannot be determined. Interpretation of Woodward's (1959) cognitive study of severely retarded, institutionalized children's play suffers from the same difficulties.

Li's (1981) survey of the literature on mentally retarded children's play indicates that such children have "a restricted play repertoire, both in the use of play material, verbal-language play, social child-to-child play, as well as pretend-symbolic play" (p. 122). However, it does not distinguish among studies controlling for institutionalization, or socioeconomic and other confounding variables. In an earlier article, Mogford (1977), who does discriminate between studies controlling for those variables and studies which do not, states that retarded children play at developmentally appropriate levels for their mental ages, providing that they have had the environmental supports that nonhandicapped, home-reared children have. This view

certainly is in harmony with a developmental model of retardation (rather than a deficit model) and is also in keeping with the earlier reported negative effects of socio-economic and environmental deprivation on children's play.

Li (1981) reviews several successful studies which improved the quality of mentally retarded children's social play, and she also points out how limited have been efforts to assist mentally retarded children to learn through play. Several writers have discussed the positive effects of play therapy techniques for mentally retarded and emotionally disturbed children (Davidson, 1975; Leland & Smith, 1965; Newcomer & Morrison, 1974), and Leland and Smith suggest an approach to play interviewing and play therapy specifically for mentally retarded children. Their approach systematically varies the amount of structure in the materials and the amount of structure the therapist uses to achieve various therapeutic goals. The emphasis falls on improving the child's adaptive behavior. Deutsch (1979) has developed a cognitive assessment strategy for "untestable" mentally retarded children from Leland and Smith's (1965) play interview approach. In this strategy, the child is placed in play situations where structure from materials and evaluator is systematically varied, and indicators of cognitive, motor, language, social, and emotional development are gleaned from the child's play in the various situations.

A handicap which clearly impeded play was blindness. Sandler and Wills (1965 as cited by Mogford, 1977) describe three effects of blindness which alter the normal developmental sequence of play. The first effect is the infant's inability to locate objects and attain them at will, and the second is distortion of parent/child interactions--which presumably is the core of play--due to lack of facial expression and infant cues which the parents can easily interpret. The third effect is a delay in imaginative play and symbolic representation.

Selma Fraiberg (1978) describes in depth the deficit in self-representation and the inability to role-play or to represent the self symbolically in a blind child who had excellent parent support and intervention. Fraiberg feels that blindness "demonstrably impedes representational intelligence in the period from 2 1/2 to 4 years" (p. 281). She states that at every point in development in which representational thought is used by the nonhandicapped preschooler, the blind child is impeded--in cognition, language, symbolic play, and human relationships, and thus in cognitive, emotional and social development. From Fraiberg's and other's work with blind infants and children, it apears that some distortion of play (stereotypes, rituals, or lack of practice play with objects) is due to environmental and/or sensory deprivation, and that such distortions of practice play are not seen in well-stimulated, neurologically intact blind children. However, the difficulties in symbolic play and representational thought seem to be basic to the blind child's problem of constructing a lasting image of self and others without vision; it requires much longer for the image of self to develop in blind children than in sighted children.

As was mentioned earlier in this chapter, two groups of severely language-handicapped children (autistic and aphasic) also demonstrate great difficulty with symbolic thought and symbolic play. Presumably this is because of an underlying cognitive symbolic disorder. Autistic children appear to be the most handicapped in all areas of play (toy play, social play, and symbolic play). A type of play therapy is often used with both autistic and aphasic children to try to develop some symbolic thought and thus to enhance language and social and cognitive development. Children with other types of language handicaps tend to show less social play than nonhandicapped preschoolers, presumably because they have difficulty communicating verbally with peers. However, the play of deaf children, who often develop a gestural system to aid communication in their early years before a formal language system is taught to them, is little affected by the handicap. Studies of young deaf children's play have shown that neither the quality of their play nor the developmental sequence or other aspects of their play are

affected by the hearing loss (Mogford, 1977).

Thus, young children's play may or may not be affected by a particular handicap, depending on the type of handicap present. Autistic and blind children's play is particularly severely affected, in part because these children have problems with symbolic or representational thought. Because of the positive developmental contributions of play, therapies and intervention approaches to all the major handicaps tend to use play as a therapeutic medium. Whether one is trying to teach language, symbolic thought, reaching and grasping, locomotion, or use of toys, a playful environment is cited by writer after writer as an invaluable aid for stimulating development (Fraiberg, 1978; Leland & Smith, 1965; Li, 1981; Mogford, 1977).

Conclusion

Play is such an all-encompassing activity for young children that virtually all areas of behavior and development--cognitive, motor, social, emotional, language--can be observed in a child's play. Similarly, children use play to master skills in all these areas, and thus all areas of a child's development are enhanced by the child's opportunities and experiences in play. Play thus appears to provide the major learning medium for young children's development.

Play does not unfold without the combination of positive, loving interactions with parents and more general environmental supports. Some types of play (especially symbolic play, socio-dramatic play, and social play) are particularly dependent upon past experience and general environmental support (materials, space, adult encouragement) if they are to develop as richly and fully as possible. Attempts to help children develop more elaborate play have been successful for children who are economically deprived, mentally retarded, or autistic. Both symbolic play and social play skills have been enhanced by intervention.

Given the central role of play in young children's development, there seems to be a clear indication that evaluators assessing young children should pay particular attention to various qualities of children's play. Information about symbolic play, solitary play, and level of social play should be used to supplement test data in recommending various types of intervention approaches. In a similar manner, professionals who direct intervention programs for young children should assess the curricula, scheduling, and content of the programs to determine the support offered for children's play and the strategies that can be incorporated to help children develop their play skills.

REFERENCES

Bates, E. Oral presentation at the Developmental Psychobiology Meeting, University of Colorado Health Sciences Center, April 1981.

Dansky, J.L., & Silverman, I.W. Play: A general facilitator of associative fluency. Developmental Psychology, 1975, 11, 104.

Dansky, J.L. Make-believe: A mediator of the relationship between play and associative fluency. Child Development, 1980, 51, 576-579.

Davidson, C.D. Psychotherapy with mentally handicapped children in a day school. Psychotherapy: Theory, Research, and Practice, 1975, 12, 13-21.

Deutsch, M. The play diagnostic manual. Columbus, OH: Nisonger Center, Ohio State University, 1979.

Elder, J.L., & Pederson, D.R. Preschool children's use of objects in symbolic play. Child Development, 1978, 49, 500-504.

Erikson, E. Play and actuality. In M.W. Piers (Ed.), Play and development. New York: Norton, 1972.

Erikson, E. Play and actuality. In J.S. Bruner, A. Jolly, & K. Sylva (Eds.), Play: Its role in development and evolution. New York: Basic Books, 1976.

Fein, G.G. A transformational analysis of pretending. Developmental Psychology, 1975, 11, 291-296.

Feitelson, D. Cross-cultural studies of representational play. In B. Tizard & D. Harvey (Eds.), Biology at play. Philadelphia: Lippincott, 1977.

Feitelson, D., & Ross, G.S. The neglected factor - play. Human Development, 1973, 11, 291-296.

Fraiberg, S. Insights from the blind. New York: Basic Books, 1978.

Horne, B.M., & Philleo, L.L. A comparative study of the spontaneous play activities of normal and mentally defective children. In J.S. Bruner, A. Jolly, & K. Sylva (Eds.), Play: Its role in development and evolution. New York: Basic Books, 1976.

Leland, H., & Smith, D. Play therapy with mentally subnormal children. New York: Grune and Stratton, 1965.

Li, A.K. Play and the mentally retarded child. Mental Retardation, 1981, 19, 121-127.

Matthews, W.S. Modes of transformation in the initiation of fantasy play. Developmental Psychology, 1977, 13, 212-216.

Mogford, K. The play of handicapped children. In B. Tizard & D. Harvey (Eds.), Biology of play. Philadelphia: Lippincott, 1977.

Murphy, L.B. Infants' play and cognitive development. In M.W. Piers (Ed.), Play and development. New York: Norton, 1972.

Newcomer, B.L., & Morrison, T.L. Play therapy with institutionalized mentally retarded children. American Journal of Mental Deficiency, 1974, 78, 727-733.

Overton, W.F., & Jackson, J.P. The representation of imagined objects in action sequences: A developmental study. Child Development, 1973, 44, 309-314.

Piaget, J. Play, dreams, and imitation in childhood. New York: Norton, 1962.

Provence, S., & Lipton, R. Infants in institutions. New York: International Universities Press, 1962.

Rosen, C.E. The effects of sociodramatic play on problem-solving behaviors among culturally disadvantaged preschool children. Child Development, 1974, 45, 920-927.

Rosenblatt, D. Developmental trends in infant play. In B. Tizard & D. Harvey, (Eds.), Biology of play. Philadelphia: Lippincott, 1977.

Saltz, E., Dixon, D., & Johnson, J. Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. Child Development, 1977, 48, 367-380.

Sutton-Smith, B. Piaget on play: A critique. Psychological Review, 1966, 73, 104-110.

Sylva, K. Play and learning. In B. Tizard & D. Harvey (Eds.), Biology of play. Philadelphia: Lippincott, 1977.

Sylva, K., Bruner, J.S., & Genova, P. The role of play in the problem solving of children 3-5 years old. In J.S. Bruner, A. Jolly, & K. Sylva (Eds.), Play: Its role in development and evolution. New York: Basic Books, 1976.

Vygotsky, L.S. Play and its role in the mental development of the child. In J.S. Bruner, A. Jolly, & K. Sylva (Eds.), Play: Its role in development and evolution. New York: Basic Books, 1976.

Woodward, W.M. The behavior of idiots interpreted by Piaget's theory of sensori-motor development. British Journal of Educational Psychology, 1959, 29, 60-71.

Play as a Mirror for Development*

Dennie Wolf

Young children's play has often been interpreted in quite different ways by observers interested in pinning down just why an activity so apparently without rewards should occupy, entertain, soothe, and even heal young children. At different points in the world's history, play has been viewed quite differently: in ancient Greece and Renaissance Venice, even adults were encouraged to join in, whereas Victorians thought of play as idle, even dangerous enough to be banned on the Sabbath. With the growth of an interest in children's development and mental health, the debate about whether to allow or promote play has died away. A second debate has grown up. This time the debate is about the specific functions or uses of play. For some observers, play is a way to run off excess energy (Montessori, 1973; Spencer, 1873). Others argue that play matters because it is a powerful force in the development of problem-solving and symbolic skills (Bruner, 1972; Vygotsky, 1967). Still other commentators, like Freud, Erikson, and Winnicott suggest that play matters precisely because, as a child plays, the demand to solve problems drops away (Erikson, 1941, 1950; Freud 1908; Winnicott, 1971).

What this debate signifies is not that play has emotional or cognitive significance but that play may promote and reflect changes in many different areas of growth. Once we admit that play is likely to have multiple functions, we enter a third, and somewhat new era in the study of play. Instead of being interested in the problem of mapping out the way in which play matures, we have to be intrigued by a new issue: "In how many different ways does play change?"

As a way of making our discussion of early play behaviors lively and concrete, a longitudinal sampling of play behaviors from a single child is presented in Table 1. By looking at this sample, it is possible to sense several major dimensions of change that play makes visible.

Reflections of Thinking, Attending and Organizing

Play can act as a mirror for the general directions of cognitive development. In it we can see the progression from the physically-based knowing so characteristic of infancy, to the pre-schooler's symbolic but idiosyncratic understandings, to the school-age child's socialized and conventionalized forms of understanding. The observations described in Table I offer an example. At one year of age, even though this child has the raw materials for make-believe available to her, much of her play is still concerned with teasing, walking and dropping things. By three and a half, her physical handling of objects is dominated by her interest in playing a make-believe game. At six, the child's play is alive with observations about the way "things are" or "ought to be" whether it is how cars are started, groceries are paid for or make-believe play is carried out.

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Table 1

A Longitudinal Sample of Play in One Child

Observation 1: The observer presents J. (age one year) with a small toy tea set and several small dolls. J.'s attention is attracted right away to a small plastic spoon. She places the spoon in her mouth and wanders about the room with the spoon protruding, mugging for her mother and the observer. J. stoops over to pick up a cup. She places the spoon in the cup, stirs it hard, and makes a "mmmm" sound as if tasting something delicious. J. walks over to her mother, takes the spoon from her own mouth, and uses it to feed her mother repeatedly. Her mother enters the game, smacking her lips, saying "mmmm," and asking for more. J. moves away and comes back with a small cup that she holds out to her mother who obligingly drinks. J. then feeds her again. Upon walking away toward the window, J. encounters the dolls. She stoops and picks one up, drops it into a nearby chair where she feeds it from both the spoon and the cup. J. then takes the cup and, balancing it on her nose, turns to show her mother, who claps.

Observation 2: Offered a set of materials which includes both blocks for building and some human figures and animals, J. (age two years five months) is asked to take the people to the zoo. J. picks up a green snake-shaped block and waves it at the observer. "He is going to bite...he's biting me. He's hurting me." She waves her hand exaggeratedly as if bitten. "We'd better build him a cage so he can't get out." She quickly selects four yellow rectangular blocks and builds a four-sided cage into which she drops the snake. "Another snake," she calls as she picks up a block in the shape of a tree but also painted green. She adds, "Better put him away," and she drops the tree into the cage with the snake. "Another big snake." she remarks of another still-larger tree block. "Is he going to get me?" she recoils, pretending to be afraid. The observer says, "Pick him up quickly and drop him in; then he won't get you." J. does this and then proceeds to repeat the gesture with all the other green blocks in sight, first the remaining trees and then even some other rectangular building blocks. "There. We got'em all. Better put them to sleep." and she constructs a roof over the "snake pit" with several additional blocks.

Observation 4: At six years, three months, J. wants to play out a birthday party. J. carefully assigns roles to the various "actors" standing around. She explains to the observer, "She (another person) is the daughter of the store person. And I'm the mother and the store person. In a real store, there would be two store people, but we only have one who acts to be two." J. then steps into the role of the mother. She moves over to a board that she had earlier said would be the car. She searches through the ring of play keys that she has and mutters to herself "What key will go? I always confuse the house keys and the car keys." She selects the key and then moves through a careful pantomime of starting the car (turning dials, operating a shift, turning a steering wheel). She puts the keys into her pocket and stage-whispers, "Now say that I was at the store." She walks toward a shelf. "Yeah, I need to make a cake." She pantomimes selecting the food. She presents her bag of items to the person who is the store-keeper. "That--Okay, how much will that be?"

Just as play reflects broad shifts in children's thought, it can also act as a mirror for the growth of attention and concentration. In other words, the shift from words to sentences to stories, or from short games of catch to season-long stretches of Little League, have their analogues in symbolic play. The first observation in Table 1 describes all the make-believe play that took place before the child became interested in waving to a dog outside the window. The last observation, made five years later, records only a fraction of a play episode that lasted almost an hour. Beyond reflecting the growth of "stick-to-it-ness", play episodes may show us how certain kinds of organizational skills increase with normal development. When children elect to play out scenes such as "doctor and patient" or "Star Wars people", their activity provides us with an x-ray of their understanding of the organization of sequential information, a crucial complement to categorical organization. (Nelson, 1969; Wolf and Grollman, in preparation). While the one-year-old observation describes play which is a "loose collection" of eating and feeding gestures, the six year-old's enactment of going to the store is a carefully ordered presentation of the usual script for going to the store.

Play as a Reflection of Symbolic Growth

If we only measured play development in terms of the growth of complexity or organization, we would be doing something akin to using novels to assess writers' knowledge of the rules of English. While it is a possible, even a plausible task, it misses the heart of the matter. If we look carefully at the three observations in Table 1, it is clear that the "soul" of what happens lies in playing with the "here-and-now" world and in finding ways to turn what "is" into what it isn't". Psychologists have named this "soul" differently, Werner spoke about it as "creating an alternative reality" (Franklin, 1981); Piaget described children's interest in assimilating reality to their own wishes (Piaget, 1962); Erikson (1950) was interested in the way that children create what he termed a "toy microosm" which was simpler to master than the real world it was modeled on.

Clinicians like Freud (1908), Klein (1955), and Winnicott (1971), have outlined how the content of children's play symbols shifts as they confront different developmental issues (e.g., separation, autonomy, latency). More recently, developmental researchers have charted the broad changes in children's symbolic abilities which provide the cognitive scaffolding for these protrayals.

One such finding is that, with age, children's play grows increasingly independent of the "here-and-now" reality in which it takes place. In the earliest stages, a child is likely to perform familiar actions, just slightly out of context. In the first observation (Table 1), J. plays at eating and drinking even though she is in her living room and there is no sign of juice, cheese, or Cheerios. Later, often in their third year, children begin to substitute one object for another (Elder & Pederson, 1978; Fein, 1975; Garvey & Berndt, 1977; Jackowitz & Watson, 1980; Watson, 1981). This ability to "decontextualize" play symbols or to perform "object transformations" shows up in the second observtion (Table 1), where J. turns a wide range of green blocks into snakes. Even the need for objects disappears as children learn to use words and gestures alone to create scenes and settings out of "thin air". For example, at six, J. can pantomime the dashboard of her imagined car into existence (Table 1, observation 3). In this way, make-believe play reflects the growing independence of symbols, like words and gestures, from literal experience.

If we were to observe play carefully we might be able to gauge how well a particular child understood that symbols can create as well as report information. Although this kind of symbolic flexibility may have its roots in play, it continues to be essential if children are to engage in problem-solving, scientific experiment or artistic creation.

Play as a Reflection of the Boundary Between Fantasy and Reality

While play may offer insights into children's symbolic skills, it is much more than a "quick and dirty" way of measuring representational sophistication. Many observers have suggested that playing fills the role in children's lives that religion, ritual or theatre takes in adults' lives (Huizinga, 1955; Sutton-Smith, 1977; Winnicott, 1971). The idea is that, as humans, we invent different or alternative realities which sustain us because they provide levels or zones of experience which are refreshingly distinct from those of our everyday routines. However, in order to be refreshed, we have to recognize the differences between play and problem-solving, worship and work; otherwise there is no sense of departure, healing or mystery. For example, a disturbed child often finds make-believe frightening because the pretense actions, wishes and creatures cannot be safely penned up in a separate zone of imaginary experience. Instead these inventions come crowding into what the child takes as reality. Similarly, two year-olds who have not worked out the differences between actual desertion and games of hide-and-seek, often find prolonged bouts of hiding frightening. These observations raise the question of how it is that normal children construct the boundary between fantasy and reality which permits make-believe to be an alternative rather than a threat.

Recently, researchers working at the intersection between clinical and developmental psychology have discovered that this process has an interesting "u-shaped" growth curve, which is perhaps clearest in doll play. If you show a very young child a toy lion and make it roar and stomp, chances are that the one year-old will find the toy curious or funny, not terrifying. If you show a two or three year-old the same roaring lion, the child is likely to cry, hunt for a familiar adult, try to throw the lion away. Show a five year-old the toy lion performing and you are likely to hear comments like, "That's just a toy; you are making him do that" (Scarlett, 1981; Wolf & Scarlett, 1979).

Children's own dramatic play provides some parallel insights into the construction of a boundary between fantasy and reality. Quite early, between the ages of 12 and 24 months, the play worlds that children create are only half a step away from their everyday lives; pretense consists largely of walking around in out-size shoes and drinking from empty cups. Beginning at about two years, children show an increased awareness of the contrast or distance between really eating a cookie and pretending to nibble on the edge of a puzzle piece. They mark this difference behaviorally with knowing eye-glances to their audience, exaggerated munching, and with verbal markers like "Just pretend". At this juncture children add questions about real and pretend to their roster of burning issues: "Is batman real?"; "Can dreams get me?"; "Are there really monsters in TV?" Their own play exhibits a parallel awareness; their dramatizations and doll scenes begin to contain what could be called "stage-managing" remarks or "meta-communications" about pretense (Bateson, 1955; Garvey & Berndt, 1977). In talk of this kind, children speak to themselves or other participants, saying things like, "Let's say that I was the witch and that I was going to jump out and get you and eat you--but I really wasn't--and say that you were scared and you tried to get way, but only just pretend, don't really run away, okay?" Talk of this kind would seem to indicate that the child knows that play is made up and that, like other fictions, it has authors who can direct and control it, change its course or stop it dead in its tracks. It may also indicate the growth of more than a personal understanding of boundaries. Additionally, it may indicate a realization that others may have drawn the dividing line at a different point between fantasy and reality and that only communication can keep one person's play from being another's nightmare.

This discussion of the construction and conscious use of a boundary between fantasy and reality tugs at some earlier notions about make-believe play. Ever since Freud compared play to the poet's day-dreaming (1908) and Piaget described play as "pure assimilation" (1962), we have had a notion of pretense play as an activity where a child loses contact with reality. More recent research on the formation of a fantasy-reality border shows that play is an activity where children loosen, but do not lose, their hold on what is actually or literally "real". Healthy play occurs in a zone where it is still funny, exciting or stimulating to be a monster because it is so clear that you really are a child.

Play as a Reflection of Social Understanding

Just as play has been considered fantastic behavior, it has also been thought of as an extremely asocial activity. However, it would be a mistake to extrapolate from private moments of day-dreaming to the nature of play in general. A glance at the observations in Table 1 shows how delicately tuned and highly social some play can be. It may involve inviting others to join, keeping them informed of role assignments and object-transformations, coordinating plans and scripts so that the dramatization goes forward smoothly, entering into an almost conversation-like pattern of turn-taking. Much as with conversational skills, these social playing skills clearly increase with age, practice and exposure (Garvey, 1974; Garvey, 1977; Garvey & Berndt, 1977; Mueller, 1981; Ochs & Schieffelin, 1979; Parten, 1932). Moreover, with development, it is possible to watch play opening up more and more to the full-scale participation of other players. Infant play is typically self-directed: children pretend to comb their own hair, feed themselves, fall asleep by mimicking their own bedtime rituals. However, both doll-play and dramatic play grow increasingly "less self-ish" throughout the pre-school period. In role-play, we find two lines of evidence. First, children adopt reciprocal roles (feeder and eater, parent and child, cook and restaurant-goer) which depict the give-and-take quality of interactions (e.g., joint planning, negotiation, argument). Second, children perform behavioral roles (fireman, teacher, Catwoman and Batman) which do not draw simply on personal experience, but which depend on learning the rules about playing the part of a superhero, parent, or baby from peers.

Doll-play amplifies these findings by providing us with a picture of children's shifting concepts of human actions and states. Early on, at about 12-15 months, children only barely recognize the possibility for pretending with dolls and other small figures. During the next year, they begin to treat figures as if they were "passive agents". Children act on the dolls, diapering them, hugging them, putting them to bed. By two and a half years, many normal children can treat dolls as if the figures were "agents" in their own right, making it appear that the dolls can speak, pick up objects, walk, interact with each other (Watson & Fischer, 1977, Wolf, 1982a). By three or four, the illusion of dolls being just like people is so well developed that children may even use figures to act out their own wishes. For example, one three year-old was having a grand time throwing handfuls of marbles across the room. When his mother reprimanded him, he put a puppet on his throwing hand, went on scattering marbles, saying "This bad puppet did it." At this juncture, doll-play becomes a realm in which children both display, consolidate and experiment with sophisticated kinds of social understandings. There is evidence that children may work out understandings of the overlapping or nested characteristics of social roles as they play (e.g., that a doctor figure could also be a father and a husband) (Watson & Fischer, 1980). Moreover, as the requisite language and psychological insights develop, children use figures to portray characters who not only act, but who have perceptions, emotions, plans, and thoughts. (Bretherton & Beeghly, in press; Wolf, 1982b).

This increasing sociability is essential to the therapeutic use of play. In dramatic play, it opens the way to "theatre" in which several actors participate as equals, and the wishes or beliefs of any one player are open to observation, discussion and negotiation. When children can make figures into human counterparts, there is the chance for them to play out and reflect on social interactions and the opportunity for an outside observer to see into the sense or non-sense the child is able to make of the social universe.

Play as an Indicator of Individual Differences

It is no accident that play has been such a powerful tool for clinicians. Unlike language, drawing or counting, the rules of play are largely up to the maker. As a result, play has proven an ideal projective technique. The way a child selects and combines themes, events and materials reveals much about what is significant to that individual (Axline, 1969; Klein, 1955). But the power of play to describe individuals may run even deeper than we have previously supposed.

There is a growing body of evidence that children of the same ages, gender, levels of cognitive development and backgrounds may differ significantly in what has been termed "imaginative predisposition" (Singer, 1973). Some children engage in more frequent, flexible, and fantastic pretense than their peers. This difference shows up on a range of measures: projective tests, teacher ratings, observations of spontaneous play, children's own descriptions of how they spend their free time. Moreover, the difference appears to be a relatively stable one--it endures across different settings, with different materials, and it lasts over time. The observations included in Table 2 indicate what this dimension looks like in actual behavior. The observations describe the play of two girls who are matched in age, background, and intellect. Despite this matching, the two individuals play quite differently. The first one, Je., shows a strong disposition to fantasy or ideational play; whereas her peer, An., has a preference for a kind of metaphoric or transformational pretense, in which she plays at turning one object into another. (Matthews, 1977; McLoyd, 1980; Wolf & Gardner, 1979; Wolf & Grollman, in preparation).

These findings raise some important questions for the assessment of play skill. Even though the overall drift of play development may be towards unanchored fantasy (e.g., being able to pantomime the presence of a car, a dragon or a birthday cake), the fact that any particular child shows less total fantasy than another cannot be taken as indicating that the second child's play (symbolic skill or cognitive level) is less advanced. Instead of measuring play development in terms of the frequency of fantasy, we have to gauge play sophistication by looking at an individual's capacity for a range of different types of play, independent of their personal patterns of preference. (Wolf & Grollman, in preparation). When we encounter a six year-old whose play is based largely on arranging and renaming objects, it is critical to ask, "Is this choice or limitation?" Knowing the difference between deficit and style requires careful investigation--several observations, observations with peers, observations with many interesting props, observations in a more barren setting that prompts imagining needed objects. If we discover a child who prefers to make patterns with cups and saucers, despite a capacity to imagine a dinner scene, we may have tapped that child's fundamental orientation to and interest in the object world. There is growing evidence that individual children may gravitate toward either the predictable world of objects or the more social experiences (Jennings, 1975; Nelson, 1973, Wolf & Gardner, 1979; Wolf & Grollman, in preparation). From all that we know to date, play behaviors turn out to be one of the strongest and earliest litmus tests for such basic orientations.

Table 2

Observations on Individual Differences in Play Styles

First pair of play observations

J., at 1:0, is presented with a small toy tea set and several small dolls. She uses the props to feed herself, her mother, and her dolls.

A., at 1:2, is presented with the same tea set and dolls. While she uses the materials briefly to enact a feeding scene, most of her attention is devoted to stacking and unstacking the plates and spoons.

Second pair of play observations

At 3:5, J. is asked to play "going on a boat trip."
J. : "Yeah, let's go in the boat. Oh, I see a wicked witch."
The experimenter and Jenny sit on the floor and pretend to look around.
Experimenter: "What else do you see?"
J. : "I see two plates. They fell down...and there's some doors and they are getting ready to saw us."
Experimenter: "On no."
J. : "We can go to Snow White's house."
The experimenter and Jenny walk across the floor.
J. : "Oh, no, don't go in there." She approaches a small door in the hall and looks in. "Oh-oh, she's sick. We better fix her up." Jenny runs for her doctor kit and a different scenario ensues.

At 3:8, A. is also asked to play "going on a boat trip." Along with A., the experimenter settles on a cloth spread out on the livingroom floor.
Experimenter: "What do you see?"
A. : "Take them with us. I better get a suitcase." She does this. She unpacks numerous small toys from the suitcase. "I'll throw these in the water 'cause all these are fishes." She packs the dolls and books back into the suitcase. He then surveys the arrangement. She points to the rug area around the cloth where she sits. "This is the water." Touching the cloth, she says, "This is the boat."

There are other play styles or habits that ought to be distinguished from deficits. For example, boys tend to be more dependent upon objects than do girls. (Matthews, 1977). Before considering that a boy is less developed than his age-mates in terms of the symbolic activity evident in his play, it is important to see what capacities he has playing with girls, with a supportive adult, acting out a theme that matters to him with a set of props that lacks essential objects. This arguement applies even more emphatically to children who do not come from Caucasian, middle-class backgrounds where the materials and adult approval for fantasy play are plentiful. Researchers have repeatedly reported that children from less advantaged circumstances play less coherently and less imaginatively. (Saltz, Dixon & Johnson, 1977; Saltz & Johnson, 1974; Smilansky, 1968). Again, it is not at all clear whether these findings reflect style, habit or capacity. Outside of middle-class Caucasian settings, children may be taught that make-believe may be shared only with peers and intimates, not with outside adults. Further, these comparisons may be misleading. Fein and Stork (1981) have recently found that if children of different backgrounds are all provided with equivalently rich and supportive play environments, the reported differences in their play behaviors effectively disappear.

Play as a Reflection of the Environment

Traditionally, we use play as a thermometer for measuring children's development. However, play behavior is remarkably sensitive to its surroundings. Long segments of imaginative, varied, cooperative play typically do not occur in confused, stressful or threatening environments (Dollard, Doob, Miller, Mowrer & Sears, 1939). Therefore, it is equally possible to assess the health or appropriateness of any particular physical or psychological environment by the kind of play that it produces.

The materials at hand affect the depth and imaginative quality of play. When play abilities are just appearing, it turns out that children need prompting and support from real or at least realistic items. A two year-old needs a hat, purse, baby, bed, blanket and teapot in order to move through a sequence of different scenes. However, as play abilities grow stronger and move toward more thoroughly imaginary levels, the presence of too many well-defined props may install a false ceiling on the level of fantasy play. At this juncture it is better to provide a few real pots and pans and bag of oddly-shaped wooden blocks to serve as fried eggs, peas, cupcakes or pizzas (Fein, 1981). As children become even more sophisticated, very abstract props are provocative--for instance, lengths of shimmery cloth that could be turned into capes, rivers or fog.

Atmosphere also affects play. Pretending contains risks. In creating an alternative reality, you leave off familiar contact with yourself, your usual round of activities, the predictability of the physical world. Particularly in socio-dramatic play you open yourself up to being more expressive than you have to be in block-building or drawing. Your playmates are similarly "opened-up". It is no accident that researchers interested in the roots of symbolic play typically conduct their observations between parents and children. Intimacy is the best context in which to take such risks. Just as the right kind of materials are critical to eliciting rich and varied play, the social context matters. Particularly for shy, isolated, or troubled children, it may be critical that we observe them playing with others that they know and trust, prior to drawing any hard and fast conclusions about what they can express or invent (Scarlett, 1980, 1982). It is equally important to provide safe plces in which to play--that is, not just physically safe, but somewhat private, out of the way, locations where fantasy can be practiced alone or with a trusted co-player without being open to intrusion (Gramza, 1970, 1973). It may

be that vulnerable children need teachers to take on the role of a co-player until they can manage the relative unpredictability of peer play (Scarlett, 1980).

Conclusion

It is no mistake that Athenians and Victorians, clinicians and cognitive psychologists have seen play differently. If we look at both the lasting descriptions of play and recent research into the development of play abilities, what is most impressive is how many different functions play appears to fulfill. In the face of that realization, it seems misdirected to go on grappling with the question of whether play is best understood as "mastery", "daydreaming", symbol exploration or social experiment. Instead, perhaps we ought to think about play--particularly make-believe play--as a remarkably important window into whatever is on a child's mind.

REFERENCES

Axline. V. Play therapy. New York: Ballantine, 1969.

Bateson, G. A theory of play and fantasy. Psychiatric Research Reports, 1955, 2, 39-51.

Bretherton, I., Beeghly, M. Talking about internal states: The acquisition of n explicit theory of mind. Developmental Psychology, in press.

Dollard, J., Doob, T., Miller, N., Mowrer, O., & Sears, R. Frustration and aggression. New Haven, CT: Yale University Press, 1939.

Elder, J., & Pederson, D. Preschool children's use of objects in symbolic play. Child Development, 1978, 49, 500-504.

Erikson, E. Childhood and society. New York: Norton, 1950.

Fein, G. A transformational analysis of pretending. Developmental Psychology, 1975, 11, 291-296.

Fein, G. Pretend play: An integrative review. Child Development, in press.

Fein, G., & Stork, L. Sociodramatic play: social class effects in an integrated classroom. Journal of Applied Developmental Psychology, 1981, 267-279.

Franklin, M. Object, act and language in symbolic play. Paper presented at the First Biennial Conference of the Heinz Werner Institute of Developmental Psychology. Worcester, MA, 1981.

Freud, S. Creative writers and dydreaming. In J. Strachey (Ed.) The standard edition of the complete psychological works of Sigmund Freud. Vol. IX. London: Hogarth, 1959 (Original publication in 1908).

Garvey, C. Some properties of social play. Merrill-Palmer Quarterly, 1974, 20, 163-180.

Garvey, C. & Berndt, R. Organization of pretend play. Paper presented at the annual meeting of the American Psychological Association, Chicago, 1977.

Gramza, A.F. Preferences of preschool children for enterable play boxes. Peceptual and Motor Skills, 1970, 31, 177-178.

Gramza, A.F. An analysis of stimulus dimensions which define children's encapsulating play objects. Perceptual and Motor Skills. 1973, 31, 495-501.

Huizinga, J. Homo ludens. Boston: Beacon Press, 1955.

Jackowitz, E., & Watson, M. Development of object transformations in early pretend play. Developmental Psychology, 1980, 16, 543-549.

Jennings, K.D. People versus object orientation, social behavior, and intellectual abilities in preschool children. Developmental Psychology, 1975, 11, 511-519.

Klein, M. The psychoanalytic play technique. American Journal of Orthopsychiatry, 1955, 25, 223-237.

Matthews, W.S. Modes of transformation in the initiation of fantasy play. Developmental Psychology, 1977, 18, 212-216.

McLoyd, V.C. Verbally expressed modes of transformation in the fantasy play of black preschool children. Child Development, 1980, 51, 1133-1139.

Mueller, N. Shared meanings: communication between peers in late infancy. Paper presented at the biennial meetings of the Society for Research in Child Development, Boston, MA: 1981.

Nelson, K. The structure of free recall by young children. Journal of Experimental Child Psychology, 1969, 8, 284-295.

Nelson, K. Structure and strategy in learning to talk. Monographs of the Society for Research in Child Development, 1973, 149.

Ochs, E. & Schieffelin, B. (Eds.) Developmental pragmatics. New York: Academic Press, 1979.

Parten, M.B. Social participation among preschool children. Journal of Abnormal Psychology, 1932, 27, 243-269.

Piaget J. Play, dreams and imitation in childhood. New York: Norton, 1962.

Saltz, E., Dixon, D., & Johnson, J. Training disadvantaged preschoolers on various fantasy activities: Effects on cognitive functioning and impulse control. Child Development, 1977, 48, 367-380.

Saltz, E., & Johnson, J. Training for thematic-fantasy play in culturally disadvantaged children: Preliminary results. Journal of Educational Psychology, 1974, 66, 623-630.

Scarlett, W.G. Social isolation from agemates among nursery-school children. Journal of Child Psychology and Psychiatry, 1980, 21, 231-240.

Scarlett, W.G. Problems in make-believe: Real or pretend? Paper presented at the annual meeting of the American Orthopsychiatric Association, New York, April, 1981.

Scarlett, W.G. The make-believe of isolated and disruptive children. Paper presented at the annual meeting of the Massachusetts Psychological Association, June, 1982.

Singer, J.L. (Ed.) The child's world of make-believe: Experimental studies of imaginative play. New York: Academic Press, 1973.

Smilansky, S. The effects of sociodramatic play on disadvantaged preschool children. New York: Wiley, 1968.

Sutton-Smith, B. Play as adaptive potentiation. In P. Stevens, Jr. (Ed.) Studies in the anthropology of play. Cornwall, NY: Leisure Press, 1977.

Watson, M. The development of object transformations in early play. Paper presented at the biennial meetings of the Society for Research in Child Development, Boston, MA, April, 1981.

Watson, M. & Fischer, K.W. A developmental sequence of agent use in late infancy. Child Development, 1977, 48, 828-836.

Watson, M. & Fisher, K.W. Development of social roles in elicited and spontaneous behavior during the preschool years. Developmental Psychology, 1980, 16, 483-494.

Winnicott, D.W. Playing and reality. New York: Basic Books, 1971.

Wolf, D. Otherhood: The origins of an independent agent concept. In G. Forman (Ed.), Action and thought: From sensorimotor schemes to symbol use. New York: Academic Press, 1982.(a)

Wolf, D. Gender and cognitive style differences: Interactions as seen in children's narratives. Paper presented at the Henry Murray Center for the Study of Lives, Harvard University, Cambridge, MA, March, 1982.(b)

Wolf, D. & Gardner, H. Style and sequence in early symbolic play. In M. Franklin & N. Smith (Eds.) Symbolic functioning in early childhood. Hillsdale, NJ: Lawrence Erlbaum Associates, 1979.

Wolf, D. & Grollman, S. Ways of playing: Individual differences in imaginative play. In K. Rubin & D. Pepler (Eds.) The play of children: Current theory and research. New York: Karger, in preparation.

Wolf, D. & Scarlett, W.G. When it's only make-believe: The construction of boundaries between fantasy and reality. In E. Winner (Ed.) Fact, fiction and fantasy. New Directions for Child Development, 1979, 1(4), 29-40.

The Use of Play in Child Psychotherapy with Severely Emotionally Disturbed Preschoolers

Gordon K. Farley, M.D.

Seventeen years ago, while I was a psychiatric resident, I was assigned a four year old boy who had been diagnosed as suffering from Early Infantile Autism. I was told that I was to do outpatient child psychotherapy with this child. The child avoided eye contact, twirled himself and objects constantly, licked every object he picked up, walked or ran on his tip-toes, used only two words, no and milk, hooted frequently, ran around the room continuously, "twiddled" and "flapped". I met with my supervisor after one 45 minute session with the child and asked him "what should I be trying to do with this child?" My supervisor said something resembling the following: "Take him to the playroom, provide him with some appropriate play materials, sit back and you will see that much like the dream in an adult, the child's play will reveal to you his inner underlying conflicts; the battle between his libidinal and agressive impulses, and parental prohibitions against the expression of those impulses. Through verbal interpretation as well as through the metaphor of play, you will aid the child in the resolution of those conflicts."

I took the child into the room for three or so hours each week and the child did none of the expected things. Instead the child did the same things over and over again--spinning objects, rocking back and forth, twisting a string that he held at the periphery of his vision--completely separated from and unresponsive to me, not caring if I were there or not. I saw none of the rich, elaborate, varied, highly symbolic play that I somehow expected, and at that point decided that something more than watching and waiting was needed.

Review of the Research

There is a long and important history of the therapeutic use of play with children of all ages. This history includes the work of Anna Freud (1946), Melanie Klein, (1932), Margaret Fries (1932), Virginia Axline (1955), and many others. Play has been thought to be useful not only in child assessment but in the treatment of children and in the resolution of their conficts.

Despite interest in the play of healthy children and children with childhood neuroses, and therapeutic use of play with these children, the play of the severely disturbed has been a relatively neglected topic. In the first 25 volumes of the Psychoanalytic Study of the Child, there are only three articles specifically referenced under play and containing the word "play" in the title. One of these articles is Lilly Peller's (1954) classic article entitled, Libidinal phases, ego development and play. Another is an article on play in relation to creative imagination (Greenacre, 1959), and the third is on the puppet play of a psychotic adolescent girl in the psychotherapeutic process (Ekstein, 1965).

There has been some writing about the play of severely disturbed children by Szurek (1973), Mahler (1958), Ekstein (1966), Bettleheim (1967) and others. In these accounts of play and the therapeutic use of play with severely disturbed children, there has been the assumption that their play has symbolic meaning, that the observation of and work with play can yield a deeper understanding and a possible resolution of the child's conflicts, and that there is a possibility of interpretation through this play.

More recently there have been a few articles with detailed descriptions of the play of children with Early Infantile Autism or Childhood Schizophrenia. Judy Ungerer and Marian Sigman (1981) have studied symbolic play and object permanence in autistic children and have compared these severely disturbed children with normal children.

How do the views of more recent writers compare with older views of children's play? One question that stands out is the question of whether severely disturbed children's play is merely delayed or whether it is deviant. Many theorists have contended that the play of severely disturbed children is similar to the play of normal children at a younger age. More recent careful studies of the play of disturbed children, particularly the studies of Ungerer and Sigman, have demonstrated that the play of autistic children is both qualitatively and quantitatively different from that observed in normal children of even comparable mental age.

I plan to describe some of the characteristics that have been noted in the play of severely disturbed children that I have seen in treatment over a period of five to ten years and then offer some ideas for intervention.

Some Characteristics of the Play of Severely Disturbed Children

I have asked a number of children "What is play?", and have gotten some interesting answers. One child said to me yesterday, "I think play is enjoying, like if you're having fun." Another child said to me, "Play is when you don't really mean it." My 17 year old son, whom I'm trying to introduce to the world of adult obligations said "Play is pure enjoyment with absolutely no responsibility." An eight year old said to me "Play is fooling around and having a good time." Another said, "Play is monkeying around when your parents aren't there and you're doing stuff you shouldn't." The point here is that every one of these definitions of play include the idea of enjoyment and fun.

One of the prominent characteristics of the play of disturbed children, children with autism or schizophrenia, is the complete lack of enjoyment. They seldom laugh in an appropriate way during their play and there seems to be little pleasure in it.

Another characteristic of their play is the frequent lack of coherent organization. Although there is often a high activity rate, there is little of what Harmon, Morgan, Yarrow and others (Morgan, Harman, Gaiter, Jennings, Gist, & Yarrow, 1977) have called cognitively mature play. Themes, if there are any, are disjointed, short, and often repetitious rather than in long sequences. There is little elaboration, there is little restructuring, and there is little creative rearrangement. There is often a striking lack of variation; in fact, there is often a reaction of fear when novelty is introduced. The child may be distressed when not allowed to play out a favorite theme or activity and may even panic. Toys are not used for their intended purpose, but may be used to bang against each other, to lick, suck, or sniff.

There is a disinterest on the part of the child in relation to the therapist, and there is a disinterest as to whether the therapist understands the communication or the play of the child. In fact, the child may very much resent an interference of the therapist in the play. The play is usually unpeopled and inanimate. The child not only prefers inanimate objects, but rejects puppets, dolls, and animals and often will not draw pictures of humans but is more likely to draw machines, designs, and repetitive patterns. If people are present in these drawings or in the play, they are represented as without feelings, unemotional and mechanical.

There may be a marked unevenness in level of development in the various symbolic areas. If language is used during the play, the language or speech and the action of or on the object are frequently joined. For example, the child may say, "I am five years old," and hold up five fingers.

Thus, we see that the play of the autistic child is moved toward the lower end of the spectrum of play described by Ungerer and Sigman, and is much more likely to include play of type No. 1--simple manipulation, mouthing, waving, banging and throwing--or play of type No. 2--relational play, touching or banging objects together in a nonfunctional manner, possibly stacking objects or using one object as a container to hold another object. There may be some functional play, that is, using objects as they are intended, such as pretending to feed a doll with a spoon. The observer will see the least of symbolic play, such as using a doll as an independent agent of action, propping a bottle in a doll's arms as if it could feed itself, or using an object as though it were a different object.

Let me give a brief description of the play of a four year old child with Early Infantile Autism. Chris enters the playroom, runs on tiptoes by the therapist, avoiding eye contact, nearly running into the therapist, but not noticing it. He avoids the puppets, flexible dolls, rubber animals, and goes to a box of blocks and picks up two of them, one in each hand and starts banging them together while rocking back and forth from foot to foot.

The therapist takes each hand of the child and says "Let's build something." He takes the child's hand and places the other block on top of it and says, "Now we are putting one block on top of the other." The therapist begins taking blocks from the box and handing them to the child. The child smells each block, licks it and places each on top of the other blocks. Some blocks he holds to his cheek, and after each block is placed, the child flaps his hands in an excited way, saying "Ooh, ooh, ooh."

The child then pushes all the blocks off the table onto the floor and begins to put the blocks in a line stretching across the floor, one block the same size on each end of the line alternately. The examiner takes a block out of the box, adds it to one end and Chris says, "No, no, no," and without looking at the therapist, pushes the block aside and places his own similar sized block in the same place. He continues like this for a few more minutes and the therapist says, "Are you building a road?" Chris ignores the comment and continues in a driven, pleasureless way. The therapist says, "I'm going to take a car and drive down this road." picks up a toy car, running it down the blocks. Chris says "No, no!" and angrily pushes the therapist's hand, with the car in it, off of the road and goes back to placing his own blocks one on each end of the road.

Suggestions for Intervention

Now to some ideas for intervention. My supposition is that it is very important for the therapist to intervene in such a way in a child's play that a response can be elicited from the child. Thus, through a systematic assessment, one can determine the level of the child's play--whether it's at a simple manipulation level, a relational play level, a functional play level or at the level of symbolic play. One of the purposes of the therapy should then be to help the child move to a higher level of play. This can be done by structuring the play, or by doing what I would call guiding the play. There is currently good research evidence showing that through the therapist's modeling, suggesting, talking, systematically introducing variation, demonstrating, coaching, rewarding--and most of all insisting on a relationship with the child--that the therapist can guide the child to play of a higher developmental level.

One way to conceptualize these developmental levels is to think of play as containing at least two dimensions. One dimension might be called symbol formation and the other dimension, social participation. Thus, each type of play that a child engages in could be seen as high or low in symbol formation and high or low in social participation. (The Ungerer and

Sigman developmental scheme of play is a good one for assessing symbolization, and I think the Parten (1932) Schemem of Play is a useful one in assessing social participation.)

Puppet play with a therapist, for example would be high in symbolization and high in social interaction. Peek-a-Boo, played with the therapist would be high in social interaction but fairly low in symbolization. Doing recreational algebra would be high in symbolization and low in social interaction, and self-stimulatory play would be low in both symbolization and social interaction.

There are a number of possibilities for a third dimension in this multi-dimensional scaling regarding play. One might suggest hedonic tone or pleasure-unpleasure as a possible third dimension. One might also suggest the degree of organization, communicativeness, or structure.

A simple-minded way of viewing the job of the therapist is that of preparing the child to use symbolic play. To do this, the therapist should attempt to become involved in a child's play at an appropriate level close to the level at which the child is engaged. If the child is engaged in solitary play, the therapist may wish to help the child advance to a stage of parallel play. If the child is engaged in simple manipulation, the therapist may wish to encourage the child to advance to relational play using combinations of two or more objects--always moving towards increased symbolization and increased social interaction. My view is that if the therapist attempts to engage the child at a level that is too discrepant from the level at which the child is currently functioning, the play will not "take," and the child will repetitively continue in his or her familiar mode or recurrent theme.

Another thought for intervention has to do with using parents as auxiliary therapists and teaching them, both through direct modeling and discussion, how to enter the child's play at an appropriate level and how to help the child to move to a higher developmental level. I often do this by inviting parents into my office or the play room and showing them exactly what I do with their child. At times, I suggest to the parents that they play for an hour or more with the child each day. I suggest materials, variations on themes and, in particular, suggest that the parents involve the child in animate and affective play. I share several developmental schemes of play and social participation with them and try to let them know what they might expect next in their child's developmental sequence. At the same time that I suggest these things, I have some appreciation of the difficulties of using parents as therapists; and I would not want to underestimate these problems. The gains seem to be greater than the risks, however. As one moves to a higher level of play, a number of other things can be done. For example, one could draw pictures of people's faces, identifying important emotions, linking them with facial expressions on the pictures. One can model the expression of emotions for the child, and one can connect emotions with events.

Sally Rogers (1981) has referred to the striking symbolic disorder in children with pervasive developmental disorders. This difficulty with symbol and metaphor often remains long after other parts of the disorder are much improved. Concrete and literal thinking often persist even after much progress in socialization and cognitive development have been made. This continued deficit needs to be kept in mind when one is working with these children. Last week in a session with a mother and child (an 11 year old boy previously diagnosed as autistic but currently in a regular classroom setting and achieving at grade level) the mother said "Bobby is painting a pretty rosy picture of his behavior last week." Bobby replied "I'm not painting a picture, I'm talking."

I'll close on this last note. Two days ago I asked a ten year old child who, six years ago, was diagnosed as having early infantile autism, what play was for and he said to me, "Play is for getting out your feelings." I took this as a sign of some progress.

REFERENCES

Axline, V.M. Therapeutic play techniques. Symposium, 1954. Five play therapy procedures and results. American Journal of Orthopsychiatry, 1955, 25, 618-626.

Bettelheim, B. The empty fortress: Infantile autism and the birth of the self. New York: Free Press, 1967.

Ekstein, R. Puppet play of a psychotic adolescent girl in the psychotherapeutic process. Psychoanalytic Study of the Child, 1965, 20, 441-480.

Ekstein, R. Children of time and space, of action and impulse. New York: Appleton-Century-Crofts, 1966.

Freud, A. The psycho-analytic treatment of children. London: Imago, 1946.

Fries, M.E. Play technique in the analysis of young children. Psychoanalytic Review, 1932, 14, 233-245.

Greenacre. P. Play in relation to creative imagination. Psychoanalytic Study of the Child, 1959, 14, 61-80.

Klein, M. The psycho-analysis of children. London: Hogarth Press, 1932.

Mahler, M.S. Autism and symbiosis, two extreme disturbances of identity. International Journal of Psychoanalysis, 1958, 39, 77-83.

Morgan, G.A., Harman, R.J., Gaiter, J.L., Jennings, K.D., Gist, N.F., & Yarrow, L.J. A method of assessing mastery in one-year-old infants. JSAS Catalog of Selected Documents in Psychology, 1977, 7, 68. (Ms. No. 1517)

Parten, M.B. Social participation among preschool children. Journal of Abnormal and Social Psychology, 1932, 27, 243-269.

Peller, L. Libidinal phases, ego development and play. Psychoanalytic Study of the Child, 1954, 9, 178-198.

Rogers, S.J. Developmental characteristics of young children's play. In G. Ulrey & S.J. Rogers (Eds.), Psychological assessment of handicapped infants and young children. New York: Thieme-Stratton, 1982.

Szurek, S.A. Attachment and psychotic detachment. In S.A. Szurek & I.N. Berlin (Eds.), Clinical studies in childhood psychoses. New York: Brunner/Mazel, 1973.

Ungerer, J., & Sigman, M. Symbolic play and language comprehension in autistic children. Journal of the American Academy of Child Psychiatry, 1981, 20, 319-337.

The Effect of Contextual Variation on Symbolic Play: Development from 20 to 28 Months

Inge Bretherton
Barbara O'Connell
Elizabeth Bates
Cecilia Shore

Research on symbolic play owes an enormous debt to Piaget. The delightful accounts of his own children's pretend activities, published in Play, Dreams and Imitation in Childhood (1962) form the basis of later, more systematized studies by Fein (1975), Fenson and Ramsay (1980), Lowe (1975), Nicolich (1977) and many others.

Four areas of development in symbolic play have been singled out by Piaget and his followers (Fein, 1981): (1) the capacity to act "as if" or perform actions outside their usual context; (2) the capacity to use a placeholder as stand-in for a realistic object; (3) the ability to represent roles other than one's own and (4) the ability to combine pretend schemes into meaningful, ordered sequences. The developmental theories of Piaget as they relate to the growth of symbolic play and language have been discussed by Sally Rogers earlier in this book. Readers are also referred to Nicolich (1981), Shore (1981) and Watson and Fischer (1977).

Event Schemata in Play

The approach taken in this paper is very different and less general. We are not looking for parallels between enactive representation (symbolic play) and other representational systems, such as language. Instead, we focus on pretending as a reflection of the child's acquisition of event schemata or scripts (Mandler, 1979; Nelson, 1981, Schank & Abelson, 1977). These are dynamic, spatio-temporal, causal frameworks which are derived from and applied to the understanding of everyday events. They represent the general rather than the specific, unique aspect of a class of events. Scripts are composed of obligatory roles--agents and recipients of action--and actions performed in a more or less obligatory temporal order. Take, for example, the much cited restaurant script (Schank & Abelson, 1977). Its obligatory actions from the point of view of the guest are entering, ordering, eating, paying and leaving. Its obligatory roles are guest, waiter or waitress and cook. A person would use his or her restaurant script (derived from many different visits to different restaurants) to make sense of statements such as: "Yesterday we went to this really first-class restaurant where they serve wonderful seafood entrees. The service was first-class too." Although this statement does not make explicit reference to eating seafood, most people hearing the statement would nevertheless assume that seafood was consumed and might also--more tentatively--assume that the waiter or waitress received a relatively large tip. Such assumptions which fill in implied information are based on a person's general knowledge of what goes on in restaurants--in other words, a restaurant script.

That even infants acquire implicit script knowledge of everyday events such as eating, going to bed, having a bath or going to the store is evident when they protest alterations in habitual routines. The ability to represent everyday scripts explicitly and outside their normal context emerges in rudimentary form in symbolic play at the end of the first year. Two aspects or dimensions of event representation--roles and actions--undergo systematic development. Roles develop from self-representation to the representation of entire role-networks and actions from enactment of single schemes to multi-scheme sequences.

Levels of Role and Action Representation in Play

Based on Piaget's more informal research, Nicolich (1977) documented the development of role and action representations as somewhat separate aspects of event schemata. He shows the invariant order in which infants in the second year of life, who were repeatedly observed in spontaneous play with toys in their homes, acquired specific pretend abilities with regard to role and action representation.

In terms of roles, infants begin by representing (enacting outside the normal context) their own role (Nicolich calls this level 2). For example, they engage in make-believe eating, drinking or sleeping, showing awareness of pretending in the form of "knowing" smiles and sound-effects which accompany the actions. This is followed by two simultaneous developments (level 3): the child's own role can be projected onto passive others (people or dolls); and conversely, the child symbolically assumes the roles of others ("mopping" the floor or "reading" the newspaper in emulation of the parents). Nicolich's level 4 is characterized by the ability to enact two similar roles in parallel, without creating a true interaction (a child brushes her own hair, then the mother's). Before a child can create symbolic interactions between replicas of people and animals, the use of a doll as agent must be mastered. This level is beyond Nicolich's framework; it was first noted by Inhelder, Lezine, Stambak, and Sinclair (1972). Use of a doll as agent means the doll is treated as a source of independent action (e.g., a mirror is placed in its hand so it can look at itself). Subsequent developments in which children produce interactions between several dolls or animals have been described by Rubin and Wolf (1979) as well as Watson and Fisher (1977) although their data are, for the most part, not based on observation of spontaneous play.

Nicolich also noted consistent development of action-representation. A child's first symbolic acts consist of single schemes: "drinking" from an empty cup or "stirring" with a spoon or "wiping" the mouth with a cloth (level 2). It is only during level 4 that children begin to combine previously single acts into meaningful sequences of 2 or 3 schemes (stirring, then drinking, then wiping the mouth). During level 5, the ordering of these schemes improves, with evidence for planning in the form of a behavioral or verbal search for objects needed to implement a script. An even later development is the performance of several episodes (dinnertime, bathtime) each composed of its own ordered action sequences. Multi-episode play seems to become common during the third year (Inhelder, Lezine, Stambak, & Sinclair, 1972), but it has yet to be systematically studied.

In 18-36 month-old children, the representation in play of multi-role event schemata containing sequenced actions and interactions looks more and more like enactive story-telling (Rubin & Wolf, 1979). In addition, language comes to play an increasingly important role in symbolic play at this age--although studies so far (Fenson, 1982; Shore, 1981) have emphasized parallels in the development of language and play, rather than documenting how the enactive and linguistic modes come to supplement and complement one another.

The Effects of Contextual Support

Detailed observations of spontaneous play have been useful in describing the chronological order in which enactive symbolic capacities generally emerge. It may be a mistake, however, to think of symbolic play levels in absolute terms, that is as levels which a child either has or has not attained. The degree of contextual support offered by (1) the verisimilitude of the toys, (2) the organization of the toys and (3) an adult who demonstrates schemes for the child, all influence a child's apparent play level.

For example, according to Nicolich, the onset of what is generally known as object substitution occurs in spontaneous play during the period when planned sequences are first

observed. However, experimental studies show that when an adult models symbolic schemes both with realistic and with nonmeaningful objects, children tend to imitate schemes performed with nonmeaningful objects significantly less often (e.g., Fein, 1975; Kagan, 1981; Killen & Uzgiris, 1980; Largo & Howard, 1979). Substitution seems to be most difficult when it involves a counterconventional object (comb = spoon) as opposed to a placeholder (stick = spoon), as noted by Ungerer, Zelazo, Kearsley, and O'Leary (1981). Object substitution involves a reduction in contextual support, since the appearance of the object cannot be used to call up the appropriate scheme. If a counterconventional object is substituted, the appearance of the object is actually misleading.

Contextual support can also be manipulated so as to enhance the quality of play. It is highly likely that the presentation of organized toy-sets which suggest a particular scenario (such as bedtime) facilitates the production of scheme sequences. However, this hypothesis, based on extensive personal observation, remains to be formally tested. What is certain is that modeling of single schemes and of scheme sequences (or scenarios) facilitates the quantity and/or quality of ensuing symbolic play when compared with premodeling performance (e.g., Fein, 1975; Fenson & Ramsay, 1980; Kagan, 1981; Largo & Howard, 1979).

The use of modeling as an eliciting technique appears to have other interesting properties. A child's level (in Nicolich's sense) of imitative play does not necessarily correspond to the level at which the behavior was demonstrated by the model. For example a putting-the-doll-to-bed scenario is often imitated with reduced role complexity by one-year-olds, with self rather than doll as agent: children may try to climb into the tiny doll-bed themselves or cover their own stomach with the doll-blanket (personal observation). Similarly, Rubin and Wolf (1979) suggest on the basis of a case study that two-year-olds tend to simplify a modeled interaction between two toy agents by making reciprocal roles parallel (a modeled scenario in which a lion growls at and chases a boy is reproduced by making both the lion and the boy growl and run). Although more systematic analyses of this phenomenon are required, the reduction of complexity suggests that enhancement of symbolic play through modeling has its upper limits, a finding which is in accord with Piaget's (1962) theory of imitation linking imitative capacities to the child's conceptual development. Constraints on imitation which depend on the child's level of development have also been documented in many studies of language imitation (e.g., Slobin & Welsh, 1973).

Introduction to the Study

In sum, there is ample evidence for an orderly acquisition of symbolic abilities with respect to roles and actions when spontaneous play is used as the basis of assessment. On the other hand there is equally ample evidence that manipulations of contextual support (perceptual and temporal) can excercise a dampening or enhancing effect on play, albeit within certain constraints imposed by the child's level of conceptual development.

In the short-term longitudinal study to be reported here, we tested the effect of contextual variations (modeling, two kinds of objects, substitution) against spontaneous play within the same sample of children at two ages (20 and 28 months). Three scenarios were modeled after the child was given an opportunity to engage in free play with each of the scenario-relevant toy-sets. The three scenarios contained an approximately equal number of schemes or actions, but the level of role-representation became more difficult, beginning with self as agent (Nicolich, level 2), followed by passive recipient (Nicolich level 3) and doll as agent (beyond Nicolich, level 5). All three scenarios were modeled with a set of realistic toys, and two types of object substitution (nonmeaningful placeholder and counterconventional object).

The study went beyond replication of previous work. We also analyzed (1) the effect of modeled role-complexity on the level of imitative play, looking for evidence that the reproduced level of play differed from the level modeled by the experimenter, (2) the role of language as an integral aspect of symbolic play to be evaluated in conjunction with play-action, and (3) the relationship of verbal and behavioral protest to modeled object substitution. Such protest had been noted in a previous study (Bates, Bretherton, Snyder, Shore, & Volterra, 1980), but never systematically analyzed in terms of its possible correlations with spontaneous and post-modeling play. All analyses were conducted for the 20 and 28 months data. In addition we looked at the longitudinal stability of individual differences, a topic about which very little information is available in the literature.

Method

Sample

The sample included 15 boys and 15 girls who participated in a longitudinal study of symbol development at 10, 13, 20 and 28 months. Twenty-seven children were recruited earlier; three were recruited at 20 months, after several children of the longitudinal sample moved away. The parents' names were obtained through birth announcements in the local newspaper. They were invited to participate by letter and follow-up phone call. Seventy-two percent of the families contacted agreed to participate. For purposes of this study, children were seen at 20 and 28 months. A home observation, followed by a laboratory session, was scheduled at each age. The data reported here were obtained during the laboratory session at 20 and 28 months.

Setting

The session took place in a 3 x 5 m laboratory playroom with two one-way mirrors. Child, mother and experimenter were seated on three beanbag chairs around a very low table. Two video cameras were used to record the session. A special-effects generator was used to select the better of the two views. A microphone hung directly above the table to pick up speech.

Procedure

Two experimenters were trained to model scenarios at each of the two ages. Each experimenter played with an equal number of boys and girls. A warm-up session and comprehension task always preceded the first and second scenario presentation. The third scenario followed after a free play session and language testing. If the child attempted to make an adult participate in the scenario she was permitted to do so; otherwise both adults remained passive during the post-modeling period.

For each of the three scenarios, the experimenter first gave the child an opportunity to play with the relevant toys spontaneously. Modeling started after the child sat back or engaged in perseverative play (usually after two minutes or so). The experimenter modeled each scenario three times, with each modeling followed by a post-modeling session. Criteria used for the termination of the post-modeling sessions were similar to those for terminating the spontaneous play episode, with the exception that children often terminated these sessions themselves with "all done." During the second and third modeling, a placeholder and then a counterconventional object were substituted for the instrument or recipient of action. The props, script, substitute objects and post-modeling play-invitation for each scenario are listed in Table 1.

TABLE I

Props, Enactment, Object Substitutions and Post-Modeling Invitations For The 3 Scenarios

	BREAKFAST (self-referenced)	BATHTIME (other-related)	BEDTIME (other agent-participation)
PROPS:	pitcher, spoon, cup, bowl, napkin	doll, tub, towel, bunting, stroller	big bear, small bear, bed, pillow, blanket
ENACTMENT:	"Let's have some breakfast." "Stir the orange juice." (stir in pitcher with spoon) "Pour the juice in the cup." (pour pitcher to cup) Slurp while drinking from cup. "Mm, good juice." "Now let's have some cereal." Scrape spoon in bowl, eat with spoon. "Mm, good cereal." "All done." "Got to wipe my mouth." Wipe mouth with napkin 2 or 3 times, without actually touching mouth.	"This is my baby." (holding doll, looking at it) "Dirty baby. You need a bath." Put doll in tub. "Wash the baby." (making washing motions) "Got to dry it off." Take doll out of tub and dry with towel. "Now let's get dressed." Wrap doll in bunting. "and go for a ride in the stroller." Put doll in stroller. "Go for a riiiide." (push stroller with doll forward)	"This is momma bear, (low voice) and this is baby bear" (high voice showing bear) "Poor baby's so sleepy." (holding small bear against big bear, using big bear's arm to pat small bear) "Poor baby's so sleepy." (repeat same action) "Momma bear is going to put baby bear to bed." (holding small bear against big bear, both over bed, lean small bear in bed) "Cover him up." (hold blanket against bear, tip over bed and leave blanket on baby bear; readjust blanket if necessary. "Night-night baby bear." Make big bear kiss small bear with smacks. "Night-night baby bear." Repeat above action. "Go to sleep."
	"Would you like to have breakfast?"	"Can you take care of the baby?"	"Can you make momma bear put baby bear to bed?"
	4" wooden cylinder, comb substituted for spoon	4" wooden cylinder, shoe substituted for doll	4" cylinder, small van substituted for small bear

The first scenario (eating breakfast) was modeled with the self as agent, the second scenario (giving a doll a bath and ride) involved a doll as passive recipient, while the third scenario (a mother bear puts a baby bear to bed) represented an interaction between an active and a passive doll. The first two scenarios contained six modeled schemes, the third scenario contained five modeled schemes.

Because this study formed part of a larger, longitudinal project on symbol development, the order in which the scenarios and the object substitution conditions were modeled was not varied. Instead, the task was treated as a test, with presentation of items arranged in increasing order of difficulty. Within each scenario the realistic condition always preceded the placeholder condition, which in turn preceded the counterconventional object substitution (which was held to be most difficult, on the basis of Ungerer's (Ungerer et al., 1981) findings). The order of scenario presentation was determined by the level of role complexity, with the easiest scenario (breakfast) always followed by middle-level scenario (bathtime) with the most difficult scenario (teddybears) last.

We judged this procedure justifiable because a comparison of random and ordered scenario presentations in a previous study (Shore, 1979) yielded very similar results in 13-month-olds.

Data Reduction

The videotaped sessions were transcribed onto coding sheets, noting modeled and nonmodeled symbolic schemes, search for prototypical objects, refusal of nonprototypical objects and nontask behaviors such as climbing on the table or handing toys to the experimenter. Intercoder agreement for schemes and behavioral protest at 20 and 28 months (calculated on the basis of three complete, interdependently transcribed cases at each age) was 88% and 91% respectively. Sound-effects and verbal utterances were also transcribed. Intercoder agreement for vocalizations and speech (based on five complete cases at 20 months and three cases at 28 months) was 84% for both ages. All calculations were based on point-to-point comparison of transcripts.

The following measures were derived from the transcripts and tabulated separately for each scenario and for each condition within scenarios (spontaneous, realistic, placeholder, counterconventional).

Scheme Frequency: the frequency of modeled and nonmodeled scenario-relevant schemes. Modeled schemes are listed in Table 1. Nonmodeled schemes included meaningful actions such as wiping the cup with the napkin, rocking the doll and making the teddybear dance. Non-relevant schemes would be actions such as banging on the table, pointing to posters in the room, or stacking the stroller in the bathtub.

Scheme diversity: as above, but excluding repetitions.

Modeled scheme diversity: only schemes actually performed by the experimenter were counted.

Meaningful sequences: meaningfully ordered, unbroken sequences (which would include nonmodeled schemes) of two or more actions were tallied and added. The longest meaningful sequence within each scenario condition was also noted. An example of a nonmeaningful sequence, by our criteria, would be putting the doll in the stroller and the stroller in the bathtub. A more complete description is provided in Appendix I.

Descriptive utterances: utterances referring to or describing a scenario-related action or prop were tallied (such as "bear," "put it in," "roll it").

Pretend utterances: utterances referring to a pretended action, substance, state or location ("wash the dirty baby," "drink juice," "he's tired," "go to work") were included in this

category. At 28 months a further distinction was made between the description of pretending ("I pour orange-juice") and verbal role-play ("That was good breakfast").

For the sequence and language measures, second-level inter-coder agreements, based on point-to-point comparisons of the transcripts, were calculated. They were 90% for meaningful sequences (based on 18 cases) and 84% for descriptive/pretend language (based on 19 complete cases). An approximately equal number of transcripts from both ages were included.

Protest: Behavioral or verbal protest against placeholder and counterconventional substitution during post-modeling sessions were also tabulated. Three types of protest were observed: search for the prototypical or realistic object, rejection of the substitute and identification of the placeholder or counterconventional object (breaking the pretend illusion). All three could take behavioral or verbal forms (actual search or "Where's de odder baby", tossing the substitute away or, "dat's not a baby" or simply "no"; rolling the van or, "dat's a truck"). The three forms of protest were combined into a behavioral and verbal protest score at each age.

Results

The data were subjected to four types of analysis. First, within subjects ANOVAs (age x sex x contextual condition) were performed on all play and language variables to test hypotheses regarding age and sex differences in conjunction with experimental variations of contextual support. Second, a detailed qualitative analysis was conducted to compare the level of post-modeling play and language with the level at which the scenarios were demonstrated by the experimenter. These analyses were carried out separately for each scenario and at each age. Third, the relationship between play variables and verbal behavioral protest to placeholders and counterconventional objects during the substitution conditions were examined. Finally, the stability of individual differences was assessed across all four contextual conditions, within and across age.

Age, Sex and Condition Effects

Age. Scheme frequency and descriptive utterances were the only variables unaffected by age. There were no interactions of age with other independent variables. Scheme diversity, sequenced schemes and longest sequence increased significantly from 20 to 28 months across all four contextual conditions (see Table 2). Overall, scheme diversity increased by 33% and sequenced schemes by 45%. The finding of no increase in scheme frequency, but a significant increase in scheme diversity indicates that the play of the 20-month-olds was more repetitive. The most striking development occurred in pretend utterances which rose four-fold (see Table 2). The impression of increased sophistication in the play of the 28-month-olds derives largely from the clarifying and amplifying aspects of pretend language. For example, the same little girl who said "wrap it" as she attempted to dress the doll in a bunting at 20 months, remarked "I'm going to put dis on her for to keep her warm" as she performed the same action at 28 months. At 20 months, she merely described her own behavior, at 28 months she attributed sensations to the doll.

Sex. No sex effects or interactions with sex were obtained in this study.

Contextual conditions. The four contextual variations used in this study were spontaneous free play and three post-modeling conditions (realistic, placeholder and counterconventional). The same toy-set was used for all four conditions during a scenario presentation, except that the most central prop was replaced with a placeholder or counterconventional object during the second and third modeling.

TABLE 2

Mean Performance on Play and Play Language Variables by Age and Condition

Variables	Spontaneous 20/28	Realistic 20/28	Post-modeling Placeholder 20/28	Counter-conventional 20/28	Age F(1,28)	p /	Condition F(3,84)	p /
Scheme frequency	10.2/12.2	14.2/15.9	10.6/11.9	10.4/9.9	NS		8.6	.0001
Scheme diversity	6.8/9.0	9.3/12.4	7.5/9.2	6.3/8.1	15.9	.001	12.4	.00001
Sequenced schemes	4.2/6.2	6.1/9.1	5.3/7.4	4.5/6.1	10.7	.003	4.4	.01
Longest sequence	2.5/2.9	2.6/3.6	2.4/3.2	2.2/3.1	17.4	.0001	NS	
Descriptive language	3.7/4.4	2.9/3.5	1.7/1.7	1.3/1.4	NS		13.4	.00001
Pretend language	1.2/4.9	2.1/7.9	1.4/6.1	1.3/5.2	32.5	.0001	3.5	.002

Note - Tukey's Honestly Significant Difference tests ($p < .05$) showed the following post-hoc differences for condition:

Total schemes:	RL	SP	PH	CC
Total different schemes:	RL	SP	PH	CC
Total sequenced schemes:	RL	SP	PH	CC
Descriptive language:	SP	RL	PH	CC
Pretend language:	RL	SP	CC	

As hypothesized, we observed a significant increase in most measures when spontaneous performance was compared with realistic post-modeling behavior (summed across all three scenarios). As Table 2 indicates, scheme frequency, scheme diversity, sequenced schemes and pretend language all rose significantly after modeling with the realistic objects. There were only two exceptions. The average longest sequence did not change with contextual condition, and descriptive utterances were actually more frequent during the spontaneous condition which elicited a lot of labeling.

Comparison of the realistic and substitution conditions yielded the hypothesized decrease in performance after modeling with the placeholder and the counterconventional objects (see Table 2). This was true for all measures except longest sequence which was unaffected by contextual manipulations. Declines were observed for scheme frequency, scheme diversity and sequenced schemes as well as for pretend and descriptive utterances. However, post-hoc tests (see Table 2) showed that for sequenced schemes and pretend utterances, only the realistic vs. counterconventional differences were significant. For no variable was the difference between the two object-substitution conditions significant, although the counterconventional means were consistently lower. Thus, we have only rather weak evidence that counterconventional substitution is more difficult than placeholder substitution as suggested by Ungerer (Ungerer et al., 1981). However, this finding must be viewed with some caution since we did not, as Ungerer, counterbalance the presentation of the various modeling conditions.

As noted above, the analysis of contextual effects was carried out with the data summed across scenarios. Inspection of scores by scenario showed that analyses of variance for contextual effects within each scenario were not statistically appropriate. However, we did observe the same contextual fluctuations in the means for separate scenarios except breakfast at 20 months. It is not the case, then, that our findings are due to the children's performance during only one of the three scenarios.

To sum up, the findings reported here replicate, within one sample and with test-like presentation, the results of a number of earlier studies in which similar manipulations were carried out separately, cross-sectionally and with counterbalanced order of presentation. The data thus provide encouraging support for researchers wishing to develop systematic tests of symbolic play abilities. It is also noteworthy that, in large measure, play and play-related language were similarly affected by the contextual manipulations.

Modeled and Reproduced Level of Symbolic Play

As we pointed out earlier, modeling as an eliciting technique is interesting not merely because of its directive effects on subsequent play, but because there is--so far largely anecdotal--evidence that children reduce the level of complexity when modeled play is too difficult. The reverse phenomenon, that they expand or enhance complexity when modeled play is very easy, has not been previously documented, but our data were examined for such evidence. The findings presented below are based on comparisons of modeled and reproduced play and play-related language, with judgments of complexity based on joint assessment of these measures.

Most of the comparisons concern role-complexity. That action complexity was reduced for all scenarios was evident from the analysis of the longest sequence measure. Not only were there no consistent differences in longest sequence by scenario, but the mean ($\bar{X} = 3.2$) was consistently below the number of modeled schemes even at 28 months. Scheme frequency and diversity did differ by scenario, however, with the intermediate (bath) scenario generating the highest performance at both ages ($F(2, 56) = 18.1$ and 13.5 respectively, $P < .001$). We have no explanation for this effect except the tentative suggestion that the content of the bathtime scenario was most appealing to the children at both ages.

Breakfast. The breakfast scenario was modeled with the self as agent, that is at the lowest level of role-representation. Since mother and experimenter were present throughout, children had the opportunity to involve one of the adults as passive recipient or as agent (thereby increasing the level of role-complexity). This is what they did, but in substantial numbers only at 28 months. Six of the 20-month-olds and 21 of the 28-month-olds included one or both adults in their play with the breakfast implements (Chi square (1) = 8.3, $p < .01$). Of the 6 20-month-olds, two treated an adult as passive recipient (e.g., by giving her a cup and inviting her to drink). At 28 months only five children included an adult as passive recipient while the remaining 16 children involved her as agent. (Note that giving a cup to an adult in this context is ambiguous and was not considered as an invitation to enter play as agent unless accompanied by the appropriate language.)

While children increased the role-complexity of the breakfast scenario at 28 months, they did not reach ceiling level with respect to all modeled behaviors. Orange-juice and cereal were mentioned as pretend substances during the demonstration of the breakfast scenario. Even though we had independent evidence that all 20-month-olds had some food or drink words in their productive vocabulary, only ten children referred to pretend substances at this age. At 28 months 22 children did so (Chi square (1) = 4.5, $p < .05$). In many cases the substances named were different from those mentioned by the experimenter and included milk, coffee, tea, beer, cheese and applesauce.

Bath. This scenario was modeled with a doll as passive recipient of action. However, differences in scenario-relevant language led us to propose a role category intermediate between passive recipient and agent: that of active recipient. Almost all (29) children engaged in some caregiving behavior toward the doll at both ages. However, at 20 months only three children talked to the doll or attributed sensations to it, while 17 merely talked about their own action toward the doll ("dry it," "put in"). By contrast 18 28-month-olds talked to the doll or attributed sensations to it, in other words assigned it an active recipient role (Chi square (1) = 10.7, $p < .01$). This was, with hindsight, the level at which the experimenter had demonstrated the scenario. Note that the judgment of active recipient is difficult to make on the basis of motor behavior alone, although careful positioning of the doll in the tub or stroller, for example, might also qualify as a criterion but was not used here. Five of the 28-month-olds used the doll as active agent (e.g., sat it in the tub and told it to take a bath). Only three children involved an adult as agent. This lesser use of an adult during the second scenario was probably due to the presence of a doll as potential partner.

The only pretend substance mentioned by the experimenter during the modeling of the bath-scenario was the (make-believe) dirtiness of the doll. Only one 20-month-old, but 10 of the 28 month-olds alluded to the "dirty baby." At 28 months, five further children talked about imaginary substances (water and soap), imaginary locations (store, school), and internal states of the doll (cold, tired), while only one 20-month-old referred to these categories, none of which were mentioned by the experimenter during modeling. Altogether two 20-month-olds and 15 28-month-olds talked about pretend substances, states or locations (Chi square (1) = $p < .01$).

With very few exceptions, the bath-scenario was enacted at the level, or slightly below the level at which it was presented, even at 28 months.

Bears. The third scenario was modeled with two figures, one in an agent role (mother bear) and the other in what we have come to call an active recipient role (baby bear). Altogether, 27 of the 20-month-olds did put one or both bears to bed. Only one of these children made the mother-bear kiss the baby-bear, that is, used a bear as agent vis-a-vis another bear as recipient. Of the remaining 26 children, 17 simplified the modeled scenario by reducing the

reciprocal roles to a parallel ones--as suggested by Rubin and Wolf (1979). During at least one of the post-modeling conditions, they put both the large and small bear (or substitute) to bed. Nine children used only one bear (or substitute) to reenact a scenario. Altogether, 16 of the 20-month-olds treated one or both bears as active recipients of their actions, while 10 used one or both bears exclusively as passive recipients. Contrary to our expectations, children did not tend to simplify the substitution conditions by using the realistic (mother) bear in preference to the baby bear substitutes. The realistic and substitute bears received equal use.

At 28 months the level of role-complexity changed dramatically. All children used both bears during at least one post-modeling condition. Twenty-four children enacted the scenario with mother-bear as agent vis-a-vis baby-bear as patient (made mother bear kiss and/or wish "night-night" to the baby bear). Twenty-one children enacted both behaviors, that is used the baby-bear as active recipient of the mother-bear's action. The remaining six children put both bears to bed in parallel, treating them as active recipients of their action during at least one of the three post-modeling conditions. It should be noted, however, that no single child used the large bear to act out the whole sequence of caretaking actions which the experimenter had demonstrated. Only three children made the mother bear hug as well as kiss the baby bear. The level of role-enactment could thus best be described as mixed, with the child putting the baby bear (or substitute) to bed and/or covering it him or herself, followed by use of mother bear to kiss and talk to it.

Pretend substances were not mentioned by the experimenter during modeling, but pretend states (sleepy, go to sleep) were. Thirteen 20-month-olds and 25 28-month-olds used sleep related terms in reference to the bears (Chi squre (1) = 3.8, $p<.05$)

Protest to Object Substitution and Its Relation to Play

Despite the significant increase in placeholder and counterconventional object use which was observed from 20 to 28 months, verbal protest to object substitution also increased significantly ($X = 1.1$ vs. 3.5, $t(28) = 5.0$, $p<.001$). Behavioral protest did not change over age. We had expected protest behavior to decline, since object substitution is generally associated with the ability to decontextualize or do without contextual support in the use of symbols. This capacity has been hypothesized to improve with age by Piaget (1962) and others (e.g., Werner & Kaplan, 1963). We were hence somewhat surprised by these findings.

Most children in the sample did in fact protest object substitution somewhat but also accepted the suggested use of the substitutes to some extent. Systematic correlations of protest to play emerged only at 28 months. At this age those children who showed the highest quantity and quality of spontaneous play and play-related language tended to protest most during the later substitution conditions (see Table 3). In addition, performance during the substitution conditions was negatively related to protest, although the association was by no means perfect (see Table 3). This was the case despite the fact that spontaneous performance was not negatively correlated with substitution performances (see next section). In a few cases the resistance to the object substitution was quite passionate. ("I don't want to play this game." "I'm going to stomp on it." "I'm going to squish it.") Only one child in the sample seemed to accept the imposed substitution in a truly playful spirit: after having been offered a comb as stand-in for a spoon, he pointed to the cup, asking, "Is that a cup?"

Stability of Individual Differences Within and Across Age

The different play measures (scheme frequency and diversity, sequenced schemes) shared much common variance at both ages. For example, when scheme frequency for each contextual

TABLE 3

Play and Play Language Behaviors Correlated with Protest Measures at 28 Months[a]

28-Months Play Measures	r
PH--scheme frequency x VP	-.43*
PH--scheme diversity x VP	-.58***
CC--scheme diversity x VP	-.39*
Sequenced PH-schemes x VP	-.46**
CC-Pretend utterances x VP	-.39*
SP--scheme frequency x BP	.58***
SP--scheme diversity x BP	.38*
Sequenced SP-schemes x BP	.50**
RL--descriptive utterances x VP	.41*
SP-descriptive utterances x BP	.41*
SP-descriptive utterances x VP	.33*

[a]SP = spontaneous, RL = realistic
PH = placeholder, CC = counterconventional
VP = verbal protest
BP = behavioral protest
*$p < .10$.
**$p < .05$.
***$p < .01$.
****$p < .001$.

condition was correlated with the corresponding diversity and sequence measures for the same condition at each age, the obtained correlations ranged from .80 to .93, p .001). In other words quantitative and qualitative measures for each of the four conditions yielded largely similar information. An exception was the "longest sequence" measure for which correlations were lower. Pretend utterances were consistently related to their corresponding play measures only at 28 months (range .38 to .76, p .05). Descriptive utterances were not as consistently related to their corresponding play measures and will not be further discussed here.

The strongest correlations between equivalent measures across conditions but within age occurred for the two object substitution conditions which ranged from .41-.84 (p .05) at 20 months to .43 to .68 (p .05) at 28 months. At 20 months, the corresponding variables for the spontaneous and counterconventional conditions were also significantly correlated (range .46 to .52, p .05). At 28 months correlations between realistic and object substitution conditions fell just short of 2-tailed significance.

With respect to correlations across age only, equivalent measures for the spontaneous condition were significantly correlated (range .38 to .44, p .05). No significant longitudinal correlations were found for the three post-modeling conditions.

Longitudinal correlations for measures summed across conditions were also examined. Only one general measure at 28 months, high-level sequenced schemes (comprising all meaningful sequences of three or more schemes), was correlated with general measures at 20 months, that is with scheme frequency, scheme diversity, sequenced schemes, descriptive and pretend utterances (see Table 4). It is remarkable that the best predictor of high-level sequenced schemes at 28 months turned out to be pretend language at 20 months.

TABLE 4

Correlations of Play and Play-Language at 20 Months with High-Level Sequenced Schemes (Three or More schemes per Sequence at 28 Months)

20 Month Measures	r
Scheme frequency	.43*
Scheme diversity	.52**
Sequenced schemes	.46**
Descriptive language	.46**
Pretend language	.74***

*p <.05 (2-tailed)
**p <.01 (2-tailed)
***p <.001 (2-tailed)

Discussion

The major findings of this study can be summarized in terms of (1) group differences and (2) individual differences.

Group Differences

Age. A significant developmental improvement was observed in the qualitative measure of action-representation (scheme diversity, sequences). This was true for all four contextual conditions. Pretend utterances showed the most dramatic rise and contributed to the sophistication of action and role representation. Action representation was enhanced and clarified when children labeled imagined actions, substances, and locations. Role representation was enhanced whenever children spoke to a figure or attributed internal states to it, thus treating it as active rather than passive recipient. It was only at 28 months, however, that a majority of children were able to use two figures to represent a reciprocal interaction in play and language.

Spontaneous play and play after modeling. At both ages the quality and quantity of most play-measures improved after modeling. The same effect was observed for pretend language. Exceptions were the purest quality measure--"longest sequence"--and descriptive utterances. Apparently children could not use the temporal support of modeling to increase the maximum length of action sequences, although modeling affected the number of sequences which were produced. Descriptive utterances were most frequent during spontaneous play due to a tendency to label the toys on initial presentation.

Realistic and object substitution conditions. At both ages there was a significant decline in play after object substitution by the model. For some variables only the differences between realistic and counterconventional conditions were statistically significant. Language and action were similarly affected by object substitution. At both ages children protested object substitution, with a significant, unexpected increase at 28 months. Piaget (1962) views early object substitution as "assimilation to the realistic object." It is as if the child used the substitute because nothing better was at hand. During the preschool years, however, some children actually relish the use of substitutes. They appear to enjoy the contradiction between the actual and imagined function of the object. Our 28-month-olds may have been at a transitional stage where they became very aware of, but were offended rather than amused by, our "toying with reality."

Level of modeled and reproduced play. At 20 months, a few children reenacted the breakfast scenario by including an adult as partner and thus increased the level of role-complexity. With respect to the bath-scenario, most 29-month-olds used the doll as passive rather than active recipient (i.e., they reduced the modeled role-complexity slightly). Most striking was the 20-month-olds' inability to reproduce the teddy-bear scenario as modeled. The most frequent behavior was to reduce the reciprocal roles to parallel ones.

At 28 months a majority of children included an adult in the breakfast scenario. The bath-scenario tended to be enacted at the modeled level, with the doll as active recipient. Change was most dramatic in the reproduction of the teddy-bear interaction which was at least partially mastered by the great majority of children.

Content. The bath scenario elicited more qualitative and quantitative play than the other two scenarios. Since this difference is not interpretable in terms of action or role complexity, we take it to indicate that in the study of pretending, content cannot be neglected over structure.

Individual Differences

Correlations of measures within contextual condition. Qualitative and quantitative measures shared much variance at both ages. Pretend language was also related to play during the same condition, but only at 28 months.

Correlations across contextual conditions. The children's performance during the two object-substitution conditions was highly correlated at both ages. Realistic and substitution play were not correlated at 20 months and only weakly at 28 months. Counterconventional and spontaneous play were correlated at 20, but not 28 months.

Protest. Only at 28 months were consistent correlations obtained between play and protest. These were positive with spontaneous play and negative with substitution. In other words, children who showed the highest quality of spontaneous play resisted the imposition of a placeholder, and--not surprisingly--engaged in significantly less play during the substitution conditions. At 20 months, however, more protest did not mean less play.

Age. Only measures for the spontaneous condition were correlated across age. No significant longitudinal correlations were obtained for the three postmodeling conditions. While the performance during the two substitution conditions was correlated within age, these measures showed no developmental stability. Verbal and behavioral protest were also not correlated from 20 to 28 months. Only one general measure at 28 months (high-level sequences) was predictable from a number of general measures at 20 months.

Implications

This study differs from others in that a test-format instead of random (or counterbalanced) presentation of items was used. Yet the results are in line with those of other studies cited earlier. Those studies had also found that modeling enhances and object substitution depresses performance. Our fear that repeated demonstration of the scenario might produce a training effect strong enough to counteract the effects of substitution proved to be unwarranted. Repeated demonstration might also have induced boredom. However, the findings concerning protest to placeholder and counterconventional objects indicate that the children were alerted, not bored, by our substitutions.

Several investigators (e.g., Nicolich) are presently attempting to develop standardized assessments of symbolic play abilities. Our results give encouraging support to such efforts. On the basis of our findings we suggest that more fine-grained levels of role-representation could be incorporated into such a test, which might also include deliberate trade-offs between action and role complexity. A child might, for example, be able to represent an interaction between two figures if the action sequence is very simple. We feel that the aim of a symbolic play test should be to bracket a child's level of role and action representation by specifying which level is possible under which conditions of contextual support. In other words, our view of play is not that a child's level of performance is absolute, but that it varies depending on the degree of temporal and perceptual support which is offered. What is interesting is to discover the range of conditions under which an ability varies, not to determine whether the child has or does not have the ability.

The significance of object substitution also needs to be rethought. If it is true that some children are more resistant to "toying" with reality, one ought to find that they have a general tendency to resist any modeled distortion of play or language. Such distortions could include reversed roles, reversed sequence or--in language--implausible commands and agrammatical utterances.

While the group data suggest that the creation of a standardized test is feasible and useful, the individual difference data give some cause for pessimism. We believe that several problems will have to be resolved before such a test can be used to assess anything other than group differences.

A number of questions regarding individual differences were raised by our correlational findings. For example, it is puzzling that spontaneous play is not correlated with performance after the realistic modeling condition, i.e., that children who do well in free play do not do correspondingly well after realistic modeling even though the quality is higher. Some researchers suggest that post-modeling behavior is more reliable since it measures competence or what the child can do while spontaneous play assesses only what the child will do (motivation). This speculation remains to be empirically demonstrated, however. It is not clear to us at this moment why children will make different use of the temporal-contextual support offered by the model. Things are further complicated by the fact that realistic postmodeling performance is not related to substitution performance, except weakly at 28 months. We may be able to answer this question better when we have discovered whether personality variables play a role in willingness to substitute an object (see above).

That individual differences are not strikingly stable across age is less worrisome than our present inability to understand the within-age correlations. Kagan (1981) found that by increasing the sample of behavior for each child (averaging symbolic play in four or more sessions), individual assessments which showed developmental stability could be obtained. If a test is to be useful for relating individual differences in symbolic play to individual differences in language or cognition, we need to know how often and how long a child must be observed to obtain a representative sample of behavior.

The fact that we can predict and understand the direction but not the relative magnitude of behavioral change in response to experimental manipulations of symbolic play may delay the construction of a standardized assessment instrument. In the meantime, merely knowing that play can be enhanced or depressed by contextual variations (without knowing how much) can be helpful in educational and clinical settings. The experimental manipulations described in this study could serve to systematically explore an individual child's play. Variations in action and role complexity, together with built-in opportunities to enhance or simplify the level of modeled play, would give additional flexibility both for the purpose of initial diagnosis and for intervention. This is true for educators and clinicians alike. Educators could, after exploring a child's initial abilities, use our manipulations to challenge a child to reach higher levels of script mastery--a prerequisite to engaging in cooperative pretending with other children. A clinician might be interested in assessing whether and under what circumstances a child is able to represent an interaction between two figures before making an affective interpretation of the child's play with two parallel figures.

In short, modeling in conjunction with individually tailored variations in contextual support and event complexity can be a creative tool for assessment and intervention.

APPENDIX I

Semantic Sequencing for Scenarios at 20 and 28 Months

The purpose is to determine how many bits of the modeled scenario the child can string together in a logical way.

In order to be counted, the sequence must be "planful" in some way (there is a reason for stirring before eating, for instance). Although this is hard to operationalize, the sequence should not be just random actions strung together.

Actions may be counted whether or not they were actually modeled provided they are related to the scenario in an obvious way (e.g., feeding Mother with a spoon).

Only actions in one unbroken sequence may be counted in a string. Once an illogical action occurs, the sequence is considered ended.

Since very few children actually reproduced all aspects of the modeled scenario, logical sequences will be counted very "locally." This means that any sequence of behavior which accomplishes dressing the doll and putting her into the stroller, for example, can be given credit even though the bathing sequence was modeled first.

The point is to get some measure of the child's comprehension of the scenario and his or her ability to demonstrate the comprehension by reproducing the sequence of events.

REFERENCES

Bates, E., Bretherton, I., Snyder, L., Shore, C., & Volterra, V. Gestural and vocal symbols at 13 months. Merrill-Palmer Quarterly, 1980, 26, 407-423.

Fein, G. A transformational analysis of pretending. Developmental Psychology, 1975, 11, 291-296.

Fein, G. Pretend play in childhood: An integrative review. Child Development, 1981, 52, 1095-1118.

Fenson, L. Changes in the contribution of gestures and speech to symbolic play between 20 and 31 months. Paper presented at the International Conference on Infant Studies, Austin, Texas, 1982.

Fenson, L., & Ramsey, D. Decentration and Integration of the Child's play in the second year. Child Development, 1980, 51, 171-178.

Inhelder, B., Lezine, I., Stamback, G., & Sinclair, H. Les debuts de fonction symbolique. Archives de Psychologie, 1972, 41(163), 187-243.

Kagan, J. The second year: The emergence of self-awareness. Cambridge, MA: Harvard University Press, 1981.

Killen, M., & Uzgiris, I. Imitation of actions with objects. Journal of Genetic Psychology, 1981, 138(2), 219-229.

Largo, R., & Howard, J. Developmental progression in play behavior in children between 9 and 30 months. Developmental Medicine and Child Neurology, 1979, 21, 299-310.

Lowe, H. Trends in the development of representational play in infants from one to three years: An observational study. Journal of Child Psychology and Psychiatry, 1975, 16, 33-47.

Mandler, J.H. Categorical and schematic organization in memory. In C.R. Puff (Ed.), Memory organization and structure. New York: Academic Press, 1979.

Nelson, K. Social cognition in a script framework. In J.H. Flavell and L. Ross (Eds.), Social cognitive development. Cambridge: Cambridge University Press, 1981.

Nicolich, L.M. Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. Merrill-Palmer Quarterly, 1977, 2, 89-99.

Nicolich, L. Toward symbolic functioning: Structure of early pretend games and potential parallels with language. Child Development, 1981, 52, 785-797.

Piaget, J. Play, dreams and imitation in childhood. New York: Norton, 1962.

Rubin, S., & Wolf, D. The development of maybe: The evolution of social roles into narrative roles. New Directions for Child Development, 1979, 6, 15-28.

Schank, R.C., & Abelson, R.P. Scripts, plans, goals and understanding. Hillsdale, NJ: Earlbaum Associates, 1977.

Shore, C. Assessing decontextualization in symbolic play: A methodological study. Unpublished masters thesis, University of Colorado, Boulder, CO: 1979

Shore, C. Getting it together. Unpublished doctoral dissertation, University of Colorado, Boulder, Colorado, 1981.

Slobin, D., & Welsh, C. Elicited imitation as a research tool in developmental psycholinguistics. In C. Ferguson and D. Slobin (Eds.), Studies in child language development. New York: Holt, Rinehart & Winston, 1973.

Watson, M., & Fischer, K. A developmental sequence of agent use in late infancy. Child Development, 1977, 48, 828-836.

Werner, H., & Kaplan, B. Symbol formation. New York: Wiley, 1963.

Ungerer, J.A., Zelazo, P.R., Kearsley, R.B., & O'Leary, K. Developmental changes in the representation of objects from 18-34 months of age. Child Development, 1981, 52, 186-195.

Development of Free Play Behavior in Infancy*

Robert J. Harmon and Anita D. Glicken

This paper describes a series of studies on the development of free play behavior in normal, abused/neglected, and premature infants aged 12 to 18 months. It begins with a review of theoretical literature on infant play, describes the observational scoring system used and then summarizes the results of the studies and their implications.

Review of Theoretical Viewpoints About Play

There are a number of theoretical viewpoints about play; it clearly has various meanings to investigators of different disciplines. Psychoanalytic writers have viewed the play of the "pre-Oedipal child" as a reflection of the child's relationship with the mother (Peller, 1954). Whiteside, Busch & Horner (1976) have suggested that the achievement of object constancy is thus necessary for the child to be able to separate from the mother and reach out to others in the environment. This led some researchers (Bronson, 1974; Freud, 1965) to describe play from a developmental perspective in relationship to the child's growing interactions with peers.

The stages described by Whiteside, et al. (1976) include "solitary play" (up to about 18 months of age) during which children are absorbed in their own activities with objects in their interactions with mother. Following this (18 months to 2 years) is the stage of "looking and parallel play," where the interaction of peers assumes greater importance. (Although from the standpoint of the development of "object relations" this type of developmental sequence is helpful, it does not attempt to differentiate solitary play.)

Other developmental theorists have focused on the notion that infants from birth are active participants in the happenings in their environment. White (1963), Hunt (1965), and others have indicated that infants have an innate motivation to master and affect their environment. The biological significance of such motivation is to promote a broad flexible knowledge about the properties of the environment and the likely results of various transactions with it. This motivation is seen most clearly when infants are free of strong biological and emotional needs, since they are then free to play and explore their environment with leisure. Piaget (1952) also stresses the active role which infants take in their own development.

Despite the conceptual importance of early play, there has been little research in this area until quite recently. Weisler and McCall (1976) offer a comprehensive review of the concepts of exploration and play as they have been used by various researchers. They emphasize the difficulty in empirically differentiating exploration and play, since both share many similar qualities, including being intrinsically motivated and facilitating the acquisition of knowledge.

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Reprints may be requested from Dr. Harmon, Department of Psychiatry, C268, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80262.

They give an example of infant behaviors in a playroom which show vacillation between exploration and play as well as behaviors which show elements of both. In an attempt to differentiate the two, they define exploration as relatively stereotyped perceptual-motor examination of an object or event, the function of which is to acquire information. Play, on the other hand, consists of behaviors which are "performed for their own sake" and are conducted in a relaxed manner and with positive affect. In previous research on exploration, they note, the qualitative aspects of play have been ignored. The total amount of time spent doing something (including looking) with an object or with the environment has been the primary measure. For play, there has been some attempt to include such things as appropriateness of the behavior or the imaginativeness of the play (Fenson, Kagan, Kearsley, & Zelazo, 1976; Lowe, 1975; Wenar, 1976; Yarrow, Klein, Lomonaco & Morgan, 1975). However, Weisler & McCall point out that there are other aspects which should be included to enable us to understand the qualitative differences in the nature of play under differing conditions.

More recent studies have investigated some of these issues. From the developmental perspective, for example, the more recent studies have investigated the relationship between play and language (see chapter by Bretherton, this volume). These studies typically utilize structured testing paradigms, rather than a more unstructured play session, since many researchers feel there is little symbolic play during unstructured situations (Fenson & Ramsey, 1980). With few exceptions (Nicholich, 1977), these studies have not had the mother available to play with the infants.

From a psychoanalytic viewpoint, Mahler, Pine and Bergman (1975), have emphasized the change in the focus of play that occurs between 12 and 18 months. Specifically, from 12 to 15 months the mother's role is primarily as a "home base" for the infant's exploration of the inanimate environment, while from 15 to 18 months, on her child's initiative, she becomes a more active participant in the play. Often a toy which is used in this play is less important than the sharing itself. Thus, the main focus of play at 12 months is on the inanimate environment, while at 18 months the main focus shifts to social play with mother.

Introduction to the Studies

In light of the above review, our interest has been to focus on the interrelationship between play with inanimate objects and social interest in the mother during the period from 12 to 18 months of age as well as this interrelationship in at-risk infant populations.

We have developed an observational system for recording behavior of infants during unstructured play which has been fully described in earlier publications (Morgan, Harmon, & Bennett, 1976; Harmon, Glicken, & Gaensbauer, 1982). The major focus of this system is to describe in some detail what infants do with objects, especially their attempts to produce feedback, to utilize toys appropriately, to combine them and to use them in a symbolic way. In addition, aspects of interest in and social play with the mother are scored. This free play system was developed as part of a larger project designed to study and clarify the concept of "mastery motivation," the motivation to master the environment (Jennings, Harmon, Morgan, Gaiter, & Yarrow, 1979; Yarrow, Morgan, Jennings, Harmon, & Gaiter, in press).

We used this system in a study of 12-month-old infants (Jennings, Harmon, Morgan, Gaiter, & Yarrow, 1979; Yarrow et al., in press) and found it useful for distinguishing general exploratory behavior from several types of more task-directed, cognitively mature play. In the study, social, affective and gross motor behavior were recorded. Relevant hypotheses of this study included the following:

First, we felt that the qualitative aspects of free play behavior may be more important than the quantitative ones as indicators of the child's intrinsic motivation to master the

environment. This hypothesis follows one from the previously cited review by Weisler and McCall. Second, we felt that the qualitative aspects of play should relate to our other measures of mastery motivation and mental development (Jennings, et al, 1979). Third, we felt that the type of attachment an infant shows to the mother will be reflected in that infant's exploration or play (Harmon, Suwalsky, & Klein, 1979).

From this normative study, we did find a number of interesting relationships. With regard to the free play itself, we found we could differentiate between general exploration and what we have called cognitively mature play. Cognitively mature play was defined as all play in which the infant used the toy in an appropriate (conventional) way, combined or grouped objects appropriately, or showed a thematic or pretend aspect of play. General exploration, on the other hand, was basic manipulation of the toys, such as shaking, banging, examining, etc. When play was looked at in this way, we found that the total amount of exploration of the toys was not related to other measures of infant cognitive functioning at 12 months (based on Bayley M.D.I. and persistence at difficult tasks). What was related was the amount of cognitively mature play in which the child engaged--suggesting that at 12 months of age, one can differentiate important aspects of free play. This is relevant since most play before 18 months, as mentioned earlier, has been globally described as "exploration" or "solitary play;" but it seems clear that there are important qualitative differences in levels of play at 12 months of age.

In addition, we found that the type of attachment a 12-month-old infant has to the mother is related both to the amount of exploration and to the amount of cognitively mature play seen during a free play period (Harmon, et al., 1979). That is, securely attached infants showed significantly more cognitively mature play, while avoidant infants showed an increase in general exploration. Our findings also suggest that more securely attached infants not only played with objects in a more developmentally advanced way, but also used their mother as a "secure base" more often, thus demonstrating both social and inanimate object play. The avoidant infants, on the other hand, seemed to focus almost exclusively on play with inanimate objects.

Although these findings for 12 month old infants are quite interesting, we felt there was a need for additional normative information as to developmental trends and qualitative aspects of free play behavior in the period from 12 to 18 months of age. This seemed especially important, since the studies described earlier had generally focused on infants 12 months of age and younger or 18 months of age and older. As part of a project focusing on the regulation of affect and emotional development in normal and abused/neglected infants (Gaensbauer, 1982; Gaensbauer & Mrazek, 1981; Gaensbauer, Mrazek, & Harmon, 1980), we were able to investigate developmental trends in free play behavior in normal infants from 12 to 18 months as well as play behavior in abused/neglected infants. In addition, from a separate study (Harmon & Culp, 1981), we investigated play behavior in low birthweight preterm infants.

Study I: Developmental Trends in Free Play Behavior in Normal Infants

In this study, there were a total of 60 infants seen--20 each at 12, 15 and 18 months of age. All were from two-parent families of middle income and met standard criteria for normality (Lubchenco, 1976; Lubchenco, Searls, & Brazie, 1972). All of the infants seen at each age group were not more than two weeks younger or two weeks older than their target birthdate.

The research paradigm used in this study has been described previously (Gaensbauer & Harmon, 1981). During the play session, the infant was free to explore a large variety of toys,

household objects and pieces of furniture. A total of 8 minutes were coded from videotape. The basic data consisted of the number of intervals in which specific types of behaviors occurred. Twenty-second intervals were used. The videotapes were coded independently by two raters. Correlational reliability was above the 90th percentile on all but one variable.

Mother and infant were directed into the laboratory playroom by a research assistant who instructed the mother to "make her infant comfortable," as if at a friend's house (see Gaensbauer & Harmon, 1981, for a description of the rationale for this paradigm). After two minutes, the mother was instructed to sit in a chair near the infant and the toys. She was asked to allow her infant to initiate any social contact during the latter six minutes of the play session.

The scoring system referred to previously was utilized, and the method of coding the behaviors remained the same. The data were analyzed using a parametric one-way analysis of variance (see Harmon, et al., 1982, for a more detailed discussion of these results). This enabled us to examine developmental trends across age groups as well as the relationship between our qualitative play and social interaction variables.

Activity Level. Nine key variables showed a significant difference between age groups and delineated three general developmental trends in free play behavior. The first trend consisted of one variable--activity level--which showed a continuous increase from 12 to 15 months and from 15 to 18 months of age. Given the infants' normal development of locomotor skills between 12 and 18 months, it was anticipated that the activity level would, in fact, increase with age. This is also consistent with the findings of other researchers (Mahler, 1975; Wenar, 1976). In this study, however, although the infants' activity level did increase consistently with age, their proximity, contact and social interaction with their mothers did not show a significant increase at 15 months, nor was there a significant increase in gross motor play with objects. This might suggest that in contrast to the more functional or goal-directed use of locomotor skills at 18 months of age (i.e., contact with mother) infants at 15 months tend to exercise their developing motor skills in the exploration of the immediate environment.

Inanimate Object Play. The second trend was reflected by five variables which showed a continuous increase from 12 to 15 and 12 to 18 months, but did not increase from 15 to 18 months. These variables were all coded to identify qualitative and quantitative shifts in infants' behavior with inanimate objects. They ranged from strictly quantitative measures (i.e., the number of objects actively used by the child in play activity) to those which reflected qualitative as well as quantitative changes in cognitively mature play behaviors (i.e., conventional or thematic use of the toy vs. simple exploration or manipulation of the object). For example, there was a significant shift in conventional use and appropriate combination of toys between 12 and 15 months of age, suggesting that the infant may be showing a sustained interest in play objects at 15 months but demonstrating no significant increase in interest in inanimate play again at 18 months of age.

Social Behavior. Paralleling this finding was our measure of social use of the object which also indicated a significant shift with age, with the 15 and 18 month olds demonstrating approximately twice as much social use of the object as the 12 month old group. A continuous increase in social play with objects across the three age groups would have been consistent with Rheingold's (1973) research. The lack of increase in social use of objects between 15 and 18 months is most probably a reflection of the similar amount of inanimate object play described, rather than a true reflection of the infant's total social interest in mother.

The third group of variables included proximity and contact, general interest and vocal bids to mother. These appear to more accurately reflect the infant's social interest and did not show a significant increase from 12 to 15 months but did show significant changes from 12 to 18 and 15 to 18 months. The increase between 15 and 18 months may support the hypothesis that social interest in the mother at this time might compete with inanimate object play. This would appear to be consistent with Mahler's view of an attempt at 18 months of age to elicit expressions of pleasure from the mother and to use the toy as a way of learning to communicate about objects and self.

In summary, the data from this first study of normal fullterm infants reflected a number of interesting trends in the development of play behaviors. In general, a continuous maturational process with increase in locomotor activity was observed over time. This supports the view of the infant as an active participant in his/her own development. Also reflected was differentiation in play behavior between 15 and 18 months of age with respect to the changing role and preference for interaction with animate vs. inanimate objects in the play environment. At 15 months the infant seems highly invested in the mastery of play and inanimate objects. At 18 months, the level and frequency of the play has remained constant, perhaps related to increased competition between general interest in the other and developing language skills at this age. These findings emphasize the importance of examining the interrelationship between inanimate vs. animate objects in the play environment between 12 and 18 months of age.

Studies 2 and 3: The Play of Risk Infants

The free play scoring system described was also used to study the play behavior of abused/neglected infants and very low birthweight preterm infants (weighing less than 1.5 grams).

Abused/Neglected Infants. With regard to the abused/neglected infants, several findings can be mentioned at this time. These findings are part of a larger project devoted to the study of emotional development in infants, and have been described by Gaensbauer, Mrazek and Harmon (1980). There were 30 abused/neglected infants in this study, and their play was compared with that of the 60 fullterm infants described earlier. The infants were age-matched for comparison.

In general, the play of most of the abused/neglected infants was deviant from the comparison group, but the deviance seemed to be in two somewhat different directions. Infants who were abused were more likely to actively explore the room and the toys, but they lacked persistent, qualitatively high levels of play as compared to the normative sample. For example, their play was often disorganized; a child would move quickly from one toy to another, seemingly demonstrating an inability to sustain interest in specific toys. At the end of laboratory sessions with these infants, the playroom would often look as if "a cyclone had hit it." The toys would be scattered throughout the room and often several of them would be damaged.

In contrast, those infants who had been neglected or depressed were more likely to show motor retardation and lack of interest in the toys. These infants would usually demonstrate qualitatively low level play behavior and often would have long intervals of lack of interest in play objects. This dichotomy is particularly important, since on the one hand the abused and angry infants were quite active and at times destructive toward the toys, while the more neglected and depressed infants were likely to show low levels of interaction. It is clear that in analyzing the data from such a heterogeneous sample of infants, one has to take into account the underlying diagnostic issues of each child.

Preterm Infants. The study of the preterm infants was part of a larger project to investigate children's relationship with their mother, their free play behavior and their persistence at difficult tasks, as well as their level of cognitive development. There were 30 preterm infants and 30 infants in the fullterm comparison group. All infants were seen at 12 months of age (corrected for postconceptional age for the preterm group). The results from the entire study can be found in Harmon and Culp (1981). With regard to the free play behavior, we found a number of interesting differences between the preterm and the fullterm groups.

Preterm infants were found to be less active than fullterms and to explore the room significantly less. In addition, they spent most of their time during free play in close proximity or contact with their mother. Although they played closer to their mothers, there were no differences in the amount of cognitively mature play in which preterm infants engaged. This was a surprising finding to us. It would appear that preterm infants are able to play as appropriately with toys as fullterm infants but prefer to play close to their mothers.

In addition, preterm infants, although in closer proximity to mother, show less direct interest in her. That is, they made fewer active bids to mother and were less likely to look at her. On the other hand, the mothers of preterm infants were more likely to initiate an interaction with their infants during the free play situation than mothers of fullterm infants. This was true in spite of the fact that they were being interviewed by an experimenter and were instructed not to engage in interactions with their child unless the child initiated them.

These last two findings seem to be consistent with a view of a hypervigilant or over-concerned relationship between mothers of preterm infants and their children as compared with mothers of fullterms. In other words, the initiation of social interaction seems to come from the infants in the fullterm group (i.e., increased interest in mother and bids to mother) whereas the initiation appears to be more on the part of the mother for the preterm infants (Harmon & Culp, 1981).

Summary

In summary, we have presented an overview of free play behavior in the period from 12 to 18 months of age as well as the play behavior of two risk infant populations. As described, this topic has not been studied in great detail; and we feel that the techniques described in this paper and previous publications have proven to be useful for the study not only of normal infants, but risk infants as well. Our studies have shown that normal infants seem to shift their interest from play with inanimate objets to play with mother between 15 and 18 months. Abused infants seem to have very active (and at times destructive) play but are unable to sustain their play or focus on the play objects as do non-abused infants. Neglected and depressed infants, on the other hand, are often passive with play objects and show very low qualitative levels of play activity. Preterm infants seem to depend on the mother for initiation during play and to play in close proximity to her. We feel the results of these three studies emphasize the importance of continuing to examine infant play behavior from both clinical and developmental perspectives. At the same time, investigators need to be cognizant that play behaviors will not only change throughout development, but may also differ depending on the population of infants being examined.

REFERENCES

Bronson, W.C. Competence and the growth of personality. In K.J. Connolly & J.S. Brunner (Eds.), The growth of competence. New York: Academic Press, 1974.

Fenson, L., Kagan, J., Kearsley, R., & Zelazo, P. The developmental progression of manipulative play in the first two years. Child Development, 1976, 47, 232-236.

Fenson, L., & Ramsey, D. Decentration and integration of the child's play in the second year. Child Development, 1980, 51, 171-178.

Freud, A. Normality and pathology in childhood. New York: International Universities Press, 1965.

Gaensbauer, T.J. Regulation of emotional expression in infants from two contrasting caretaking environments. Journal of the American Academy of Child Psychiatry, 1982, 21, 163-170.

Gaensbauer, T.J., & Harmon, R.J. Clinical assessments in infancy utilizing a structured playroom situation. Journal of the American Academy of Child Psychiatry, 1981, 20(2), 264-280.

Gaensbauer, T.J., & Mrazek, D. Differences in the patterning of affective expression in infants. Journal of the American Academy of Child Psychiatry, 1981, 20, 673-691.

Gaensbauer, T.J., Mrazek, D.A., & Harmon, R.J. Emotional expression in abused and/or neglected infants. In N. Frude (Ed.) Psychological approaches to child abuse. London: Batsford Academic and Education Ltd., 1980.

Harmon, R.J., & Culp, A.M. The effects of premature birth on family functioning and infant development. In I. Berlin (Ed.), Children and our future. Albuquerque: University of New Mexico Press, 1981.

Harmon, R.J., Glicken, A.D., & Gaensbauer, T.J. Relationship between infant play with inanimate objects and social interest in mother. Journal of the American Academy of Child Psychiatry, 1982, in press.

Harmon, R.J., Suwalsky, J.D., & Klein, R.P. Infant's preferential response for mother versus an unfamiliar adult: Relationship to attachment. Journal of the American Academy of Child Psychiatry, 1979, 18(3), 437-449.

Hunt, J. M. Intrinsic motivation and its role in psychological development. In D. Levine (Ed.), Nebraska symposium on motivation. Lincoln: University of Nebraska Press, 1965.

Jennings, K.D., Harmon, R.J., Morgan, G.A., Gaiter, J.L., & Yarrow, L.J. Exploratory play as an index of mastery motivation: Relationships to persistence, cognitive functioning and environmental measures. Developmental Psychology, 1979, 15, 386-394.

Lowe, M. Trends in the development of representational play in infants from one to three years--an observational study. Journal of the American Academy of Child Psychiatry, 1975, 16, 33-47.

Lubchenco, L.O. The high risk infant. Philadelphia: W.B. Saunders, 1976.

Lubchenco, L.O., Searls, D.T., & Brazie, J.V. Neonatal mortality rate: Relationship to birthweight and gestational age. Journal of Pediatrics, 1972, 37, 403-408.

Mahler, M.S., Pine, F., & Bergman, A. The psychological birth of the human infant. New York: Basic Books, 1975.

Morgan, G.A., Harmon, R.J., & Bennett, C.A. A system for coding and scoring infants' spontaneous play with objects. JSAS Catalog of selected documents in psychology, 1976, 6,105.

Nicholich, L. Beyond sensorimotor intelligence: Assessment of symbolic maturity through analysis of pretend play. Merrill Palmer Quarterly, 1977, 23(2), 89-101.

Peller, L. Libidinal phases, ego development and play. Psychoanalytic Study of the Child, 1954, 9, 178-198.

Piaget, J. The origins of intelligence in children (second edition). New York: International Universities Press, 1952.

Rheingold, H. Independent behavior of the human infant. Minnesota Symposium on Child Psychiatry (Volume 7). Minneapolis: University of Minnesota Press, 1973.

Weisler, A. & McCall, R.B. Exploration and play. American Psychologist, 1976, 31, 492-508.

Wenar, C. Executive competence in toddlers: A prospective observational study. Genetic Psychiatric Monographs (Volume 93). 1976, 189-285.

White, R.W. Ego and reality in psychoanalytic theory. Psychological Issues, Monograph 11. New York: International Universities Press, 1963.

Whiteside, M., Busch, F., & Horner, T. From egocentric to cooperative play in young children. Journal of the American Academy of Child Psychiatry, 1976, 15, 294-313.

Yarrow, L.J., Morgan, G.A., Jennings, K.J., Harmon, R.J., & Gaiter, J.L. Infants' persistence at tasks: Relationships to cognitive functioning and early experience. Infant Behavior and Development, 1982, in press.

Yarrow, L.J., Klein, R.P., Lomonaco, S., & Morgan, G.A. Cognitive and motivational development in early childhood. In B.Z. Friedlander, G.F. Sterritt & G.E. Kirk (Eds.), Exceptional infant. (Vol. 3), New York: Bruner/Mazel, 1975.